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AUTHOR Clark, Douglas H., Ed.
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ABSTRACT

The report presents the proceedings of a 1978 Nebraska statewide conference intitled "The Education and Training of the Deaf-Blind/Severely-Profoundly Handicapped." Titles and authors of the 13 papers presented include "Considerations for Full Educational Service for the Severely and Profoundly Handicapped" (N. Haring); "'Where Do I Start?' Some Ideas for Beginning Communication with Pre-Language Children" (S. Anderson); "A Model Case Service Delivery System for Deaf-Blind Children" (P. Cotten and others); "Vocational Considerations for Multi-Handicapped Persons" (R. McDonald); "Parent and Family Services" (M. Frazer, B. Cacioppo); "Para-Profesional/Tutor Companions for Deaf-Blind/Severely-Profoundly Handicapped in Florida" (J. Hoff); "Occupational and Physical Therapy for the Multi-Handicapped" (B. Scanlan); "Task Analysis and Prevocational Considerations for the Deaf-Blind/Severely-Profoundly Handicapped" (D. Stoddard, A. Stoddard); "Individual Education Plans" (L. Kates, J. Hoover); "Vision Assessment and Stimulation for Deaf-Blind/Severely-Profoundly Handicapped Children" (C. Picociello); "Auditory Assessment for the Deaf-Blind and Severely-Profoundly Handicapped Children" (T. Allen); "Assessment of Cognitive Development in the Young Child With Severe and Multiple Handicaps" (R. DuBose, C. Robinson); and "The Profoundly Handicapped Child-Assessing Sensorimotor and Communication Abilities" (N. Fieber). (DLS)

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The Deaf-Blind/Severely-Profoundly Handicapped

Proceedings from the 1978 Nebraska Statewide Conference

Nebraska Diagnostic Resource Center

Cozad, Nebraska

Edited by

Douglas H. Clark
Nebraska State Department of Education

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Acknowledgment

On April 12, 13, 14, 1978, the Nebraska Diagnostic Resource Center at Cozad, Nebraska was pleased to have hosted a three day conference for parents, teachers and administrators engaged in or interested in the education of the severely/profoundly handicapped child.

I personally feel that the conference was a tremendous success when measured by the amount of information shared in regard to methods, techniques and program direction currently in use around the nation today. Many of us shared the feeling that the conference ended in a spirit of unity between all disciplines which will ultimately lead to an increase in quantity and more important, quality of services to the targeted population.

An important spin-off was the use of the conference as a vehicle to raise interest and enthusiasm of the local citizens of Cozad to the Center itself. It was noted that the populace entered into the spirit of friendliness and cooperation with the participants during the three days. Certainly the dollar impact was felt, but more important was the understanding and awareness aroused as to the Center's goals in the overall progress and improvement in education for the severely/profoundly handicapped.

We thank you for the opportunity to have hosted the conference and for the further opportunity to have participated in such a stimulating conference.

DAVID R. CRAWFORD, Ed. D.
Administrator
Nebraska Diagnostic
Resource Center

Foreward

The State of Nebraska has been actively engaged in serving the severely/profoundly handicapped for many years. Under our state law for Special Education, L.B. 403 and the current Federal Legislation, Public Law 94-142, Education for all Handicapped Children Act, Nebraska has accepted the legal responsibility to serve this type of exceptional child. When the first Educational program was started in Nebraska for the severely handicapped, we in the State Department of Education soon realized that this type of educational programming would prove to be both challenging and costly but we were prepared to accept this responsibility and have shown through our many day programs and residential programs that Nebraska is a leader in this area of special education. The determination and drive of the many teachers, administrators, and parents of our severely handicapped children proves that we truly believe that *all* children, regardless of their developmental level can reach their maximum level of potential if given the proper support and encouragement coupled with the program knowledge that is required by staff members working with these children. This conference is an attempt on our part at the State Department of Education to provide as much support as possible to the many persons involved with the education and training of the deaf-blind/severely-profoundly handicapped child. We owe these children the best that we can offer and hope that these efforts will allow them the opportunity to realize their full potential.

DR. ANNE CAMPBELL
Commissioner of Education

Preface

I am pleased to have this opportunity to express my enthusiasm over our first state-wide conference on The Education and Training of The Deaf-Blind/Severely-Profoundly Handicapped. The State of Nebraska has been actively involved in educating this population of handicapped children for many years through statutes for the education of handicapped children and now, with the passage of federal legislation, the need is even more evident as more children of this nature are located and in need of services. The Special Education Branch has attempted to present a wide variety of presentations and viewpoints so that the vendors of services, the consumers of services and the advocates for these consumers would have exposure to a variety of teaching methods, materials, and philosophic viewpoints. With this in mind the conference was conceptualized.

I hope that these three days provided an arena for all conference participants and presentors to share ideas, discuss program concerns and grow in a manner that will insure that all our handicapped children, regardless of severity, will be afforded the right to a free and appropriate education.

GARY M. SHERMAN, *Director*
Special Education Branch
Nebraska Department of Education

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Introduction

Douglas H. Clark
Special Education Branch
Nebraska State Department of Education

A major concern in the field of special education has been the problem in appropriately serving the deaf-blind and the severely-profoundly handicapped child. Services for the Deaf-blind go back many years to the work of Ann Sullivan and her able student Helen Keller but work with the mentally handicapped deaf-blind as well as the severely and profoundly handicapped student has only recently received some of the attention and professional direction that it so desperately needs.

The State of Nebraska has had, for several years, state legislation Nebraska L.B. 403, that mandates special education services for all children ages 5-21. In the most recent legislative session, L.B. 889 was passed which mandates that all children from the date of diagnosis of the handicapping condition to age 21 shall receive a free and appropriate public education as outlined in our federal legislation Public Law 94-142, Education for all Handicapped Children's Act. These legislative mandates allowed our special education branch the opportunity to proceed with the process of insuring appropriate educational placement and programming for the deaf-blind and/or the Severely-Profoundly Handicapped child. As the state of Nebraska is a rural state, services for these students was found to be scattered and, in some cases, unavailable. It was this realization that gave birth to the concept of our first state-wide conference for the education of this population of handicapped students.

The response substantiated our thoughts. Over three hundred persons applied for only one hundred available participant openings to attend the conference. Because of this large response it was felt that all sessions should be videotaped and a book of the proceedings published. This would allow for widespread dissemination of the subject matter presented.

We realize that this is only a start in the long and difficult road in serving these children. Much needs to be done in all areas of programming for these students and of ultimate importance is how will this programming insure that these children will grow to the point where they can participate in society to the best of their ability.

It is these concerns that paved the way for a conference such as this and I can only hope that all the participants in the conference found it a useful and productive activity in which they can return to their local programs and improve these services so that these children can develop to their maximum potential.

Considerations for Full Educational Service for the Severely and Profoundly Handicapped

Norris G. Haring
University of Washington
Seattle, Washington

The delivery of special educational services to severely and profoundly handicapped children in public school settings is a multifold issue taking in questions of administrative organization, establishing programs, solving geographical and funding problems, deciding where to place the children and, of course, what and how to teach them. Today I want to go over some ground and re-examine both the philosophies inherent in our new notions of service delivery and some of the specific areas of curriculum development which currently offer much hope for the success of severely/profoundly handicapped students in public school contexts.

Even though the 1978-1979 school year is several months away along with the attendant changes that will occur all across the nation this fall for special educators, it is important to look back for a moment at what were (and still are for many) the arguments against community integration of these children.

Institutions for the severely handicapped, or "warehouses", to use Burton Blatt's term, we are told, are a better solution because most parents simply are not up to the task of caring for their severely/profoundly handicapped children. Because of the extreme nature of their handicaps, these children (and adults) are better kept away from a public which will never accept their differences. Anyway, they are all "happier" together in the same setting and if enough money were devoted to upgrading institutions, the inmates could develop into healthy and happy individuals. And since caring for the severely handicapped *is* such an expense, the public's money is best spent on centralized services.

The dramatic shift away from those enduring but unsatisfactory rationalizations began a few years ago with Scheerenberger's concept of deinstitutionalization. He, along with others, argued eloquently that, among other things, our tax dollars are better spent getting the handicapped *out* of their segregated living conditions, *into* communities nearer their families, and providing proper community services (education and jobs), so that eventually, they might become independently functioning members of society insofar as possible. For those who must remain in institutions, however, for whatever reason, he argued a renovation and upgrading of those services was mandatory.

Today we are at an historic crossroads with respect to the recommendations of Scheerenberger. Institutions are still with us though most have undergone major changes in attitude towards their charges. The severely handicapped are in the community, highly visible in many cases (Madison, Wisconsin; Eugene, Oregon; Seattle, Washington; Boston, Massachusetts), going to regular schools and living in our neighborhoods. Yet unless we meet the emptying of the "warehouses" with high-quality adequate assistance and make reassuring contact with the shocked parents of newborn handicapped children, we will not see the eventual integration we all hope for. And given the distance we still have to go in changing the American public's attitude toward the handicapped, we may experience a backlash if we do not seek ways to ward it off. Indeed, the more visible the severely and profoundly handicapped become (moving in next door, riding the bus, working on the assembly line), such a backlash may be inevitable however conscientious the efforts of special educators and civil libertarians are.

What does a town or city have to provide to ease this transition? There are three essential areas. The significant biomedical breakthroughs in the field of retardation of the last decade have not centered on prevention per se — for the causes of most forms of retardation are still unknown — but rather on detection. Roughly 7% (6.8%) of potential handicaps can be identified before birth by medical technology such as genotypic scanning and amniocentesis. At birth and during the neonatal period, more than 75% of severely and profoundly handicapped infants can be identified

through examination and use of the Brazelton Neonatal Behavior Scale assuming the examiner has been well trained in the use of the Scale. Therefore, since as much as 50% of some forms of retardation can now be diminished if caught early enough, intervention programs for infants and young children are imperative. Given what we now know about the very special nature of the parent-infant relationship in the nurturing stage, mothers and fathers must be active participants in such programs.

The comprehensive early intervention program has as its goal the smooth transition of its graduates into regular public school kindergartens. This assumes the schools will be ready to receive these children. Appropriate educational service support for the handicapped in public schools (and that means neighborhood schools so the children may remain near their families and playmate-peers) is the second component. This means not only individualized pre-academic and academic instruction but pre-vocational and vocational as well.

Severely handicapped students may now spend as many as fifteen or sixteen years in school learning basic but functional reading skills, how to dress themselves, order a meal in a restaurant, ride a city bus and, finally, hold a job. Although currently there are few severely handicapped people doing work of a wage-competitive nature, there are already thousands in sheltered workshops and living semi-independently.

The entry of the handicapped into the American workforce is an issue fraught with misunderstanding and resentment. But, couched in terms of every citizen having a right to earn a livelihood and become as responsible a citizen as possible, the disagreements appear less worrying. That is, once developmentally disabled people are seen as contributing members of a community, the high expense of their education and social support services will be better understood. In any case, the cost of institutionalization ($2 million per lifetime per patient) will be seen as the greater and less feasible long-term expense. In this light, group homes are the third necessary provision in a community. This means, too, a whole network of respite care assistance and foster homes, partially offset by the rising rate of "difficult to place" babies being adopted.

Small communities are faced with the daunting prospect of paying for some or all of these services (and the federal and state mandates necessitating their doing so) and have found a variety of solutions. Some rural communities have considered consolidating their school systems to form a larger, more adequate financial base to attract federal monies to assist making available these services. Many, however, have been reluctant to relinquish the concomitant loss of control over their own school affairs. Given this, some states have come up with ways of helping such towns acquire the needed technical aid.

In Vermont, for example, the legislature began in 1972 a 10-year plan to assure all the state's handicapped children of adequate education. This involves close cooperation with the University of Vermont's Center for Special Education where training programs have been instigated to train "consulting teachers" who go to various locales and train regular classroom teachers as well as visiting the schools to provide assistance. The University also has training programs for tutors, interdisciplinary professionals, group home managers, health workers and rehabilitation personnel. In 1974-1975, graduates of the UVT programs served 1300 severely/profoundly handicapped school-aged children in regular classrooms operating under an educational model called the Minimum Objective System, a data-based individualized curriculum.

In California, the state has set up an educational telephone network for consultation and inservice training. Georgia has launched extension courses in local community colleges to provide extra training to classroom teachers faced with severely handicapped children entering the regular classroom. Tennessee, Colorado and Virginia have purchased and staffed mobile units which travel around the state offering instructional assistance and diagnostic services to outlying regions.

In their concern for establishing special services, school systems in sparsely populated areas are stymied also by low enrollments, geographic isolation, distance from resources and often by the social or ethnic uniqueness of the population being served. The state of New Mexico, facing these problems, undertook a two-pronged plan combining on-site inservice training (Project Outreach) and special summer sessions at the University of New Mexico for teachers in rural areas.

While early intervention projects are flourishing (over 250 in the Los Angeles area alone), services for adolescent severely or profoundly handicapped students are not yet commensurate with needs. However, many

curriculum models designed for younger severely involved students are applicable to older ones. The public school system of Madison, Wisconsin, working closely with the University of Wisconsin's Department of Studies in behavioral Disabilities, has evolved a service delivery model for secondary-age handicapped students. Starting in 1969 in a separate school with a single-teacher/single-class style educational model, the secondary approach progressed to a departmentalized model where the students had different teachers for different subjects and moved from classroom to classroom until now where the model is a combination self-contained school with departmentalized instruction and, most importantly for this age group, community-based teaching of social and self-help skills and vocational education. This way, the gap between the school and community is reduced, the teenagers' exposure to non-handicapped people is increased (so they may learn to adapt to the inevitable negative reactions encountered) and prevailing professional and community stereotypes about the handicapped population are undermined. The adolescents in the Madison program are continually demonstrating skill repertoires that were previously believed beyond their ability.

The successful performance of handicapped students in primary and secondary school settings is increasingly predicated on the assumption that their earliest years are spent as recipients and participants in early intervention programs which pay off. I would like to go over briefly the reasons for such programs and then explain what the essentials are for their success.

In order for small children to acquire basic motor, cognitive and social skills, an interaction between the child and his environment must occur. In the case of developmentally delayed youngsters, this environment needs to be manipulated in order to guide them in acquiring these skills, so that, in the process, they undergo as nearly normal a development as possible. Early detection of handicaps and subsequent intervention can avoid the difficulties encountered when at age 4 or 5, these disabilities are diagnosed, usually to a far more complex and involved degree.

Today there is growing widespread agreement over what constitute the requirements for a child needing early intervention. Advanced infant assessment techniques such as the Apgar Test which measures five important newborn infant behaviors (heart rate, color, respiration, muscle tone and responsiveness) have been instituted in many hospitals and provide the basis for deciding the developmental promise of an infant. There is also the Bayley Scale of Infant Development which tests motor and cognitive functions and the Brazelton Neonatal Behavior Assessment Scale mentioned earlier, a 9-point test administered at 1-2 weeks age to measure fixing, tracking and calming.

If at least two independent observers agree that on the basis of one or more of these tests, the child's current behavior is significantly deficient in two or more of the areas of language, motor, sensorimotor, or social self-help, then one criterion for diagnosis is filled. The other is the high probability that the presenting condition or observed deficiency are not correctable with episodic intervention but will require long-term care.

What happens next? Educators and interdisciplinary consultants working closely together assemble an instructional strategy designed to correct and compensate for the child's deficits. Then, the plan is implemented, instruction begun (a program of infant stimulation, for example) along with the inextricable element of monitoring and data-gathering to test whether the original strategy is working out as predicted.

That is the intervention *process* but what must be present for the intervention *program* to be successful and accountable? Its rationale must be based on the assumption that infant behavior, however basic and instinctual the reflexes present, can be modified into gradually more complex levels of development paralleling the hierarchical development of the non-handicapped child. It must contain trained personnel thoroughly cognizant of neurophysiological development, able to synthesize input from interdisciplinary consultants, and able to train parents or other staff members in intervention techniques. It must employ a curriculum refined and specialized enough to guarantee the instruction of successive steps of child development (Bricker & Iacino, 1975).

Since 1975 the Madison Public Schools have provided public instruction for all children in need of it from birth to 21 years. The early intervention programs for severely/profoundly handicapped children are divided into the 0-3 age group and the 3-5 years' group. Madison's experience has shown that rationale, detection and curriculum alone are

not enough. They have, among other things, developed a model referral system within the city's medical community and stimulated the very necessary cooperation between schools, community agencies and university personnel.

A vigorous program of parent training is reinforced by semi-annual progress reports to family and pediatrician. Research has shown that the instruction by parents of their handicapped children at home enhances greatly the efficiency of any instruction they receive at school. However, a comprehensive parent program — as in Madison — also provides needed support assistance to mothers and fathers in the form of group meetings and sensitivity to the emotional stress that frequently occurs after the birth of a handicapped child.

Parents need to be trained to become expert data-takers so that the seemingly imperceptible progress a handicapped child makes can be seen as firm and demonstrable. This brings up my next point, that of the whole area of *measurement* and *evaluation*. For without these two vital components, no educational program for the developmentally disabled can confidently proceed. *Measurement is quantification.* A teacher measures behavior when she translates information about it into numbers. Measurement is a dynamic measure of behavior which charts performance, its rate, quality or quantity over time, preferably daily. The observation of human behavior, the decision of what to observe, these are the bridges between program design and measurement technique. We can only measure observable behavior and only those observable behaviors which we can see over a period of time. Further, observation alone is not enough. Nor is the recording of it. We must witness *change*.

What are the forms this change takes? We see them in the *way* we choose to measure. It can be through a simple binary checklist (Yes/No, did the behavior occur?). It can be demonstrated through percentage. Or frequency (How often does John bang his head against the desk?). Or duration (For how many minutes does Teddy's tantrum occur?). Or latency (How long does it take for a severely retarded child to respond to "Come here"?).

Evaluation is appraisal. It is a safeguard against inadequate or imprecise teaching methods. Evaluation is using data obtained from measurement to make decisions. It must be applied to all levels of education severely/profoundly handicapped people, such as program development, individualized instruction, facilities design, and vocational education. In the classroom, a built-in ongoing evaluation of instruction can be a criterion-referenced measurement. This helps the teacher always keep in the back of her mind what the ultimate purpose of the teaching is (e.g. to toilet in a variety of situations, not just in the classroom). One criterion-referenced measurement (Reavis, Morrey & Hamel, 1976) sets up three-levels of evaluation programs training handicapped students to integrate into the community. It involves a screening level which obtains specific measures of community living skills needed (cooking, etc.), a programming level (the instruction itself and a close monitoring of those emerging skills) and the community entry level which involves designing an evaluation instrument for checking the learning of those skills necessary for eventual transfer into the community.

Evaluation is the process by which we observe, measure, compare and then draw conclusions. This activity can be refined into two categories: formative evaluation and summative evaluation. The former is the collection and use of data to make relatively immediate determinations about whether or not the intervention process must be altered to maintain or improve a pupil's performance. The latter is the collection of data to describe a pupil's progress over a longer period of time.

We can single out four major steps to the evaluation process: observation, organization, analysis, and decision. The important thing is that the process be continual to provide a firm data base upon which decisions may be made.

Pupil's progress is not the only thing the special educator must evaluate. Program evaluation is imperative for the success of our efforts for two reasons. First, since we are still at a relatively early stage of educating the severely/profoundly handicapped population in a thorough, comprehensive manner, we must be especially sure that the steps we do take are the *right* ones. That is, we evaluate out of a sense of obligation to those people we serve. Secondly, since the majority of current intervention and habilitation programs involve public monies, we must be confident our procedures are longitudinally effective in a demonstrable way. That is, we are accountable, through our work, for the gradual positive transformation of society's attitudes toward this segment of the populace. Through

careful program evaluation we can ensure this occurence.

Presently, in program evaluation, there are five broad categories to be examined: the child, the classroom, the teaching staff, the total educational ecology, and the educational/administrative considerations. We can ask two basic questions of any program. Are the pupils in the program making meaningful educational gains? Is there some reason to believe that the program itself is actually helping the children to learn and is more effective in doing so than possible alternative programs?

Evaluation and dissemination should become part of the total research and development picture so that researchers who explore new areas and discover new solutions will see their recommendations put into action swiftly. There is a need for more research into assembling measurement systems to better evaluate how well intervention programs produce desired learning outcomes and to determine the total effect of education on improving the life of severely handicapped people after formal schooling is over.

Occupational and physical therapy for the severely and profoundly handicapped have also undergone considerable changes in the last few years. Moving from the older isolated therapy model where the child was taken out of the room once or twice a week to the newer integrated therapy model where the therapist comes into the classroom daily, has been a great step forward. A firmer grasp of neurodevelopmental principles has also virtually revolutionized approaches to positioning and handling. That is, taking into consideration our knowledge of the way the brain develops and controls physical movement, we can compensate for delayed reflexes, normalize muscle tone, and inhibit abnormal reflexes which if left untreated cumulatively result in the needlessly distorted muscle coordination frequently seen in cerebral palsy victims. Once a normal muscle tone is established then the effort to facilitate voluntary movements can occur.

One stumbling block for geographically isolated treatment centers for the severely physically involved child has been the often prohibitive cost of the equipment used in therapy. Today there is a growing realization that occupational and physical therapy requirements can be fulfilled without costly manufactured appliances by creative and judicious adaptations of existing equipment. These can include positioning wedges cut from polyurethane foam or made from wood covered with foam padding. Or strategically placed pillows. Toys can be adapted such as padding the pedals of tricycles or fixing up a scooter to be pushed along the floor by a recumbent child. A barrel lined with foam padding replaces expensive equipment as do sitting apparatuses made from wood, foam and sawhorses. Tables, chairs, straps, velcro stripping and other objects can be used to make prosthetic furniture or alter children's shoes or clothing to assist in teaching them how to dress themselves.

Language is among the most complicated things to teach severely/profoundly handicapped persons because it requires their learning a panoply of interrelated behaviors, mental and physical actions. Language abilities can be divided into roughly two categories, expressive and receptive. Or, to put it another way, those involving production and comprehension. For example, nonverbal handicapped children typically have better developed receptive language behaviors than expressive ones. Traditionally, the issue for teachers of the severely handicapped has been which to teach first, receptive or expressive powers?

Recent opinion, however, based on behavioral analysis experiments, is generally in agreement that for training severely/profoundly handicapped learners, both should be taught simultaneously — or in rapid succession. To begin with we need to know the age of the pupil, his ability to use gesture, his use of spontaneous vocalization, whether he is capable of physical production of speech at all, his previous speech and language records and whether receptive language skills are at a higher developmental level than expressive ones as well as whether he has verbal imitation skills. Then we need to apply one of the language assessment tools currently available. Adaptations of Foster, Giddan and Stark's Assessment of Children's Language Comprehension and the Peabody Picture Vocabulary Test allow handicapped pupils to respond in a variety of ways. The Language Assessment Aid for the Classroom Teacher developed at the Experimental Education Unit of the University of Washington is a tool based on the Sequenced Inventory of Communication Development. It is broken down into three sections: Receptive language; expressive language which may be tested; and expressive language which may be observed and noted by the teacher.

Of recently evolved communication curricula

which require of the pupil an ability to produce speech sounds, the Functional Language Training Program for the Severely/Profoundly Handicapped of Guess, Sailor, Keogh & Baer, is among the most significant. Defined as an "interlocking sequence of individual training steps to be implemented for children (and adults) who have acquired verbal imitation skills", the Training Program operates in five dimensions (reference, control, self-extended control, integration and reception) and covers a curriculum which includes: Persons and Things, Actions with Persons and Things, Possession, Color, Size, Community Living, Social Skills, and Conversational Speech.

A non-vocal child is one for whom speech is not now a functional means of meeting his communication needs. Today, communication aids are becoming the most frequently used methods of assisting children whose oral communication systems are partially or completely inadequate. While some parents traditionally have been reluctant to approve mechanical augmentative aids on the grounds that they would *inhibit* development of oral speech, Vanderheiden's recent studies have indicated that such assistance can, in fact, *promote* speech. He urges that where possible speech training and non-vocal communication programs should be carried on in tandem.

There are three main kinds of augmentative aids in use today. First, there are the *scanners* which involve the use of any aid or technique in which the message elements are offered to the child through visual display. Second, there are the *encoders* in which the desired character is indicated by a pattern or code of input signals which must be memorized or referred to on a chart (such as Blissymbolics). The third type is *direct selection*. In this method the desired output or message element is directly indicated by a message sender such as a communication picture-equals-word board. These are operated by a variety of switching mechanisms depending upon the child's physical abilities including those activated by sight and breath, pillow pressure and muscle-flexing. Eventually a brainwave-instigated switch may also be developed.

Once an appropriate augmentative mode has been chosen, instruction may begin. The structure of such a program must take into consideration the physical mechanism itself, the symbol system and vocabulary used, and the attendant rules and procedures (or grammar) for combining and presenting the symbols so they will be most easily interpretable by the receiver.

Manual English (American Sign Language) has certain advantages over more complex communication methods because of its portability and potentially more expressive quality. Sign language is fluid, flexible and in many instances, highly iconic, standardized, and more closely approximates the spontaneous nature of spoken language. Simultaneous communication is the most frequently used version of sign language with the severely handicapped population. This involves conceiving, encoding and uttering the English at the same time the speaker uses signed English. The disadvantages of manual English for this population are its requirement of considerable motor agility, the audience restricted to those who can read signs, and the increased number of signs to be learned and retained.

While recent innovations have been a great step forward, communication aids available are still not fast enough or widely available on a low-cost basis. If speech deficient children are to enter regular public school classrooms, they must be equipped to communicate at as near the same rate as their fellow pupils as possible. Research efforts directed toward achieving those increased rates should be carried on in parallel with finding ways for handicapped non-speakers to enjoy leisure activities and eventually to enter the labor force. As back-up services for non-vocal persons in the community we should have resource centers — they could be part of a small public library, for example — which offer communication aids and repair services. Language training programs must be dynamic. Transdisciplinary teams must provide consultative services for teachers of non-verbal children in the public classroom and, finally, work together to find out what sorts of other combinations (equipment or otherwise) can be used with existing augmentative communication approaches.

An interesting phenomenon is being observed by many educators who are professionals engaged in working at all levels with the severely/profoundly handicapped. That is, the more experience we get the more measurably responsive these individuals are becoming to the educational process. The effectiveness of comprehensive service delivery programs toward increasing the skills of the severely handicapped is providing the evidence that they are quite educable. What we have learned and continue to learn from all our activities with these children will prove invaluable in our endeavors with less handicapped individuals. Thank you.

"Where Do I Start?" Some Ideas for Beginning Communication With Pre-Language Children

Sharon Anderson
Meyer Childrens Rehabilitation Institute
Omaha, Nebraska

As an outreach teacher for deaf/blind, I see a lot of children who behave in what we might call a "pre-symbolic" manner. They do not use or understand speech, they do not recognize pictures as representations of real objects or people and they do not have any systematic way of making their needs and desires known. Parents, teachers, therapists, and anyone involved with the child naturally want to get communication started. Since the child is not responding to speech, educators often turn to other symbolic means of communication: manual signs, pictures, Bliss symbols, or any combination. The educator sets aside a certain period of the day (say 10:15 - 10:30 A.M.) to "work on language development." This language program often consists of the child sitting in a chair, facing the teacher, with the teacher presenting an object or series of objects, and the child required to imitate the teacher, point to the correct picture, or give the manual sign for the object. Correct responses are rewarded. Often the reward is something totally unrelated to the object, since the object is not itself intrinsically rewarding. However, after a while, the child learns to point to the correct picture or make the sign whenever she/he is confronted with the situation. The teacher then says, "this child has learned the (word/ sign/picture) for such and such, knows what it means, and uses it appropriately."

This is not necessarily true. The child has learned the correct response in a certain situation, but may not be able to generalize it to new situations where the same response is desired. Let me give an example.

I worked for a while in an institution where the children went to the dayroom to wait for lunch. When it was ready, they were to line up at the door of the dayroom and give the manual sign for "eat," before proceeding to the diningroom. The children soon learned that when they were lined up at the door and a teacher came toward them, they were to give us the sign, then go to the diningroom to eat. However, if lunch was delayed for some reason, none of the children came to an adult with the sign for "eat" in a demanding or questioning manner. They became upset, they fussed, one or two of them took our hands and pulled us vaguely about, but they did not think to use the sign. If we were outdoors and wanted to go directly to the diningroom, our insistent demonstrations of the manual sign, and even guiding the children's own hands through the sign were of no avail. They simply did not understand that "eat" meant anything outside of the specific context: being lined up by the door of the day room.

The point I am trying to make is that language — whether spoken, written, pictured, or signed — is symbolic, and there is a difference between learning words as signals and making the mental leap to using words as symbols. The first we can teach, the second we can't.

Robbins and Steinquist (1967), and Van Dijk (1965) discuss the difference between signals and symbols. Signals are tied to an immediate physical situation and indicate wants or needs. Symbols refer to objects which may be removed in space or time. Symbols involve the ability to think about objects without manipulating them, and situations when the physical cues are not present. This is "the ability to represent something by means of a 'signifier' which is differentiated from and which serves only a representative purpose..." (Piaget and Inhelder, 1969) This ability is what Van Dijk refers to as "distancing," or differentiating between self and object enough so that a third thing (e.g. the verbal label "cookie") is understood to *represent* the object without *being* the actual object.

The ability to use representation does not develop in the normal child until about 18-24 months of age. Prior to this time, children go through a stage of signal communication, where

the message is elicited by the situation and is only about needs or desires. (Piaget, 1969) Language is only one of a number of forms of representation. Symbolic gesture, symbolic play (where one object stands for or represents another object, not present), and graphic representation (pictures) are others. In the normal child, all of these begin to emerge at about the same time. In the deaf child, language emerges only *after* the others are well developed. (Piaget, 1969)

There are several implications this has on language training for severely handicapped children.

First, if the ability to use symbols of any kind does not emerge until the child has a mental age of about 18 months, pictures, Bliss symbols, or manual signs may be no more appropriate than speech as a mode of communication *if we are talking about* symbolic communication, or the ability to differentiate between "signifier" and "signified."

Just because a child doesn't understand speech, there is no reason to assume an alternate mode of communication is going to develop symbolic understanding. Second, when the child learns a word/sign/picture via the operant conditioning approach, we must be very clear in what context or situation it has meaning for the child, and in which situations it does not.

Third, if all children go through a level of signal communication before developing representational abilities, we can assume signals are prerequisite to symbols. Therefore, for pre-symbolic children we should orient our language programs around events in which the child will have the *need* to develop signals, the motivation to learn and use them. Rather than labels for objects, language programs need to focus on the child's desires, with vocabulary selected from the child's daily routine, and signals developed around each important event. Symbols will be presented to the child (we don't stop talking), but if the child does not yet have a signal system, our goal should be toward establishing that before we start discussing speech vs. signs vs. pictures, Bliss, etc.

Fourth, for the child who already has a signal system developed, a significant proportion of the child's activities should be devoted to developing the *idea* of representation, in all its modes. This is especially true for the deaf child.

The development of representation depends heavily on imagery, or the child's ability to form a "mental picture" of the object or event, to be recalled at will. Without such a mental picture, the child is tied to the specific context in which the object exists. It is impossible to refer to the object or situation, because the child has not abstracted the *concept* of "chair" or "ball" or "cookie" or "shoe." The ability to understand what "shoe" refers to depends entirely on your concept of the essential attributes of a shoe. If all the shoes you have ever had experience with have been white tennis shoes, you may not recognize a black satin pump as being a shoe. The deaf/blind child has this problem, in that the ability to abstract essential characteristics and come up with a mental image of the object is impaired. Imagery does not develop along the normal visual and auditory channels. The child does not recall an object by how it looks or sounds, or even feels. What the child understands best is the motoric relationship between self and object: how the object moves, and how I move with it. Van Dijk (1965) has outlined a program to take the child through the development of imagery, imitation, natural gestures as symbolic representation, and finally, formal language training. The essence of this program is that language is not forced on the child, or presented arbitrarily in a 15 minute daily session. Language develops around the child's activities, thoughts, feelings, and desires. Activities are not done with teacher sitting here and child sitting there, but together, as one person, with the teacher sitting behind the child, guiding the child's hands through playing with and referring to the toy. At the very beginning, activities consist of moving with objects together - teacher and child touching - in ways the child finds safe and comfortable. The increase of distance between child and teacher, and the complexity of both activities and language forms presented is done systematically as the child begins to understand the difference between I - you - this object, and becomes ready cognitively and emotionally to handle symbolic language. The emotional component is critical, as sensory impaired children often have difficulty developing normal interpersonal relationships, which are prerequisite for positive learning experiences. For anyone seriously trying to take multiply handicapped children who do not understand representation or imitation through the stages of pre-language communication, I would recommend reading Van Dijk's articles.

I'd like to talk about four types of communication I feel are essential in a total communication approach, before the child arrives at a symbolic level of understanding. Although

the child learns these more or less in a hierarchy in the ideal situation all four elements are presented simultaneously, with more emphasis on the level where the child gets most of her/his information.

1. On - the - body touch cues. When a mother talks to a young infant, her natural impulse is to touch the child in ways that will cue the baby to what is happening. She greets the child not only with words and a smile, but a kiss, or a pat on the tummy, etc. When she is going to put on socks or booties, she touches the child's feet and may even play games like "this little piggy." Children who do not yet understand higher forms of communication need a system of tactile signals to direct their attention to the part of the body where something important is happening. A tap on the bottom means "sit down," a touch on the sole of the foot means "shoes on," rubbing the child's own hands down his/her chest means "shirt on." Will Costello (1975) describes a system of touch cues and manual signs using the child's own hands which he calls contact communication. He describes a method combining Van Dijk's ideas about touch and kinesthetic memory facilitating learning with operant conditioning of formal and adapted manual signs.

2. Situational cues. As the baby gets to be a few months old, she/he learns that certain sights/sounds/smells mean dinnertime, a bath, or going outside. Understanding of situational cues occurs when the child has developed a sense of expectation based on the reliability of familiar routines. Once the child has this sense of routine, the appearance of certain people/objects/sounds, etc. acts as a signal, "it's lunchtime." Whether the child is at a symbol or a signal level, the situation is a stimulus which will elicit some type of response. We need to be aware of this, and use it to our advantage. That means the child needs to participate in the preparation and cleanup of activities, as well as the activities themselves. Going to the cupboard and getting out the paints, going to the pegs and taking down the paint shirts may signal the child what is to happen better than any word, sign, or picture.

3. Natural gestures. These are gestures which describe an action of a person or object. With normal infants about nine months of age, requests with gestures get responses much quicker than requests without gestures - when we talk to young children, we do use some gestures: "give it to me" is accompanied by outstretched hand, palm up; "put it there" is accompanied by a point; "don't do that!" may include head shaking, an arm motion to stop the child, frowns and an angry posture. With a nonverbal child we need to systematize these gestures somewhat, so that there is consistency beween people who use them with a particular child. However, it is important to remember that "natural gestures" are those the *child* finds natural and understandable. A gesture for "ball" might be a throwing motion for a child who enjoys throwing, a bouncing motion for a child who likes to bounce but not to throw. A throwing gesture for a child who hates to throw is inappropriate.

4. Symbols. This is "formal language," which might be speech, manual signs, pictures, or a combination. Even when the child doesn't seem to be reacting much to symbols, you want to include them. However, your main emphasis may be on any one (or more) of the four elements outlined above. Hopefully, it will shift more toward gesture and symbols as the child learns to respond to them. But the timeline should be based on the child's abilities and needs rather than an arbitrary period at one level or another.

Videotape: This videotape shows a preschooler who is deaf/blind and his teacher. Brian has some remaining vision and hearing, but although he reacts to sound, he does not understand speech. He comes into the group once a week, for thirty minutes. The teacher has organized a routine so that the children know what to expect each time they come in. First, some type of music activity, then some type of gross motor activity, then going to separate areas to play individually with toys. Specific activities may vary: music may be playing rhythm instruments with a record, or dancing to music. However, each activity has an opening and closure. The teacher takes Brian to the record player to turn it on. You can see he recognizes it with pleasure, and knows what is coming next. When the instruments are brought out, he can hardly wait. After a short time, the music is stopped, to give the children a chance to decide: do you want more music? The teacher signs "more" as she talks. Brian has a gesture of waving his arms for "more" of anything. Here the teacher could have modeled shaking the instrument, so the sign "more" has something to refer to: more music.

You can see the various levels of communication all together. The teacher says "let's sit down," and pats Brian's fanny - a touch cue. Once he is down, she reinforces it: "Brian is sitting down," using her own hands in the sign for "sit," then guiding Brian's own hands through an approximation of

the sign. Brian spontaneously reaches for the teacher's hands when he wants to stand up, and so the teacher extends her hands and raises them in a gesture, when she says "stand up." The gesture acts as a cue, and Brian extends his hands.

In the sociobowl, Brian gets a "ride" up and down. Again, the teacher stops to ask if he wants more. Creating opportunities for the child to express himself is just as important than making sure you are using good communication cues when you are talking to the child. Here Brian pats the sociobowl, a gesture clearly indicating "go." The teacher accepts his gesture, but also guides his arms in a closer approximation to the motion he is actually experiencing. Again, the pause for a "more" signal. Brian now turns to the teacher and directs his gesture to her. Previously his gestures were directed to the object. The teacher accepted these, knowing that Brian did not yet associate her with the ride in a cause-effect relationship. Here you can see that understanding emerging: not just "go" directed to the object, but "you *make* it go" directed to an adult.

When they are finished, the teacher guides Brian's hands through the "finished" sign. You can see he doesn't accept it, and gestures for "more." The teacher repeats "we are finished," using the sign. Brian still gestures for more. I know many teachers who would have decided to take him out at this point, but this teacher wants the child to understand, so again she repeats they are finished. Brian finally accepts it, and readies himself to get out. This is one of the best examples I know of to show that real communication is taking place between teacher and child. Both are interested in the activity and each other, both are getting their messages across; and each is responding to the other's messages. How much would be taking place if the teacher depended on speech or speech and signs alone?

To summarize, a hierarchical approach to total communication runs as follows.

First, decide what your communication goal for the child is. Where does the child function now? At a level of anticipation based on physical cues? Understanding on-the-body touch cues or signals? Using signals to request events? Understanding gestures as simple commands in formal language? Once you know the level at which you and the child will be communicating, set up a routine with activities which will allow plenty of opportunity for communication about what is happening. Ficcocello (1975) states that activities should:

1. reflect integrated long-term goals
2. be relevant to the child's environment
3. occur in the course of daily routine in the environment
4. consider the child's handicapping conditions and level of functioning.

Thus, "vocabulary" to be "taught" should be related to goals in the area of self-help, cognition, motor skills, acceptable social behavior, and *all* the other areas where the child's needs are. "Vocabulary" should include those objects/actions/events which a child experiences daily, and exclude those a child has no experience with. A child who doesn't play with balls or cars or bicycles really has no need or desire to learn those words until a basic vocabulary and good communicative attitudes are well-established. Language is based on experience: you must have something to talk *about*.

To the maxims above, I would add a fifth: activities should be pleasant and enjoyable to both teacher and child. If the activity is not pleasant, neither of you will have anything interesting to say, and you will end up by drilling the child to imitate you - an experience which may give the teacher some satisfaction, but is frustrating and irrelevant from the child's point of view.

Within the familiar routine, you develop a system of communication using touch cues, natural gesture, speech, and any other form of representation appropriate to the child. You use this system to refer to what the child is actually experiencing: actions, emotions, and anticipated actions (what happens next). Once the child begins to understand this particular set of cues within this particular situation, you begin to do two things (one at a time) you change the situation a little (order of events, objects used within an event) so the child has to generalize the signals she/he knows from one situation to another; and you increase emphasis on higher-level cues while decreasing the number of lower-level cues. In other words, a child who understands all your touch cues very well but only one or two gestures needs a routine which allows many opportunities for gesturing the actions the child enjoys. While the child originally relies on touch cues, as she/he becomes familiar with the sequence of events and knows what to expect next, you can gradually replace the touch cues with gestures, simply by offering more of the latter and fewer of the former. As the child learns those gestures, you modify the activities a little so the understanding to those gestures transfers to new situations.

That's kind of a quickie recipe, but the spices are

added according to individual taste. Following is a capsule summary of non-verbal communication development, as abstracted from the Callier-Azusa and the Midwest (Collins) scales. Please note: this is not intended to be exact or to include every item, but simply to give an idea of the sequence of development of pre-verbal communication skills.

Some Pre-Verbal Steps to Communication

1. Changes behavior when stimulated
2. Differentiated smile/cry elicited by physical sensations
3. Anticipates familiar pleasant physical activity on basis of physical cues
4. Passive cooperation: allows self to be guided, but takes no interest
5. Expects repetion of familiar stimulus on basis of physical cues
6. Responds to cues: participates in teacher's midification of his movement
7. Begins to be interested in objects: repeats behavior for interest in object's action
8. Understands one consistent tactile signal with situational cues
9. Signals teacher to continue favorite activity: uses one signal consistently, situational cue
10. Anticipates daily routine: time sense based on physical needs
11. In simple sequence of actions, anticipates which action comes next
12. Discriminates between a few gestures/tactile messages and responds appropriately
13. Begins spontaneous imitation of familiar motion
14. Begins vague tugging at, pushing at: requests for help or attention
15. Expressively uses a few tactile messages
16. Understands a few gestures (indicating self or action)
17. Discriminates physical attributes of objects and responds to visual attributes
18. Anticipates routine on basis of physical cues; readies self for change of activity without assistance
19. Uses action gestures referring to immediate physical situation
20. Responds to simple command given in formal language.

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A Model Case Service Delivery System for Deaf-Blind Children

By
Paul D. Cotten, Ph. D., Director
Ellisville State School
John J. Askew, B.S., Coordinator
Mississippi Program for Deaf-Blind
Children, Ellisville State School
Richard G. Long, M.S., Coordinator
Vocational Rehabilitation for Blind
Multihandicapped Adults, Ellisville
State School

One of the most frequently discussed topics in the field of deaf-blindness is the need for cooperation and coordination among the various state and private agencies who provide services to these individuals. Many references in the literature relate specifically to the poor communication between educational training programs and programs conducted by rehabilitation agencies. It is evident that most professionals believe complementary interagency communication is a prerequisite to timely, appropriate services to deaf-blind individuals. In recognition of this need, the Ellisville State School, located near Hattiesburg, Mississippi, has initiated a service delivery system designed to meet the needs of all deaf-blind people, regardless of age or functioning level. This program, begun in 1971, was to address the need for smooth transition from education to rehabilitation, and to insure that all clients, no matter the level of functioning, were receiving training that would facilitate their movement toward a "less restrictive environment". The final component of the program was added in February, 1978. The initial phase of services to deaf-blind was the development of an educational program.

In March, 1971, the University of Southern Mississippi and Ellisville State School obtained a grant from the Southeast Regional Deaf-Blind Center to employ a Head Teacher-Evaluator. This Head Teacher-Evaluator was charged with the responsibility for locating children and assisting in providing evaluation and follow along services, which included getting the child involved in the few available community programs and parent training.

The Mississippi Jaycees and the State of Mississippi provided funds for the establishment of an evaluation center to be staffed with a psychologist, social worker, child development specialist, and speech pathologist. Ellisville State School's medical staff consulted on each person evaluated with the other staff members doing comprehensive evaluations.

Then in September, 1971, Ellisville State School and the University of Southern Mississippi received another grant from the Southeast Regional Center for Deaf-Blind Children for a part-time administrative assistant, a part-time secretary, and itinerant teacher for the deaf-blind children of Ellisville State School

The following year, Ellisville State School received another grant from the Regional Center which allowed for continuation of all the staff positions acquired with the previous grants and included funds for equipment, office supplies, staff development, and out of state tuition supplements. These particular grants allowed for a dramatic increase in the (1) daily educational services provided to the state's deaf-blind children, including (2) home training and (3) parent education. This three prong expansion of services established the Mississippi Deaf-Blind Program as a viable source of service delivery for the deafblind children of Mississippi.

Currently the program consists of an administrator, a secretary, an educational coordinator, three teachers, a psychology technician, a social worker, an itinerate teacher, a consulting speech pathologist and five teacher's aides located at Ellisville State School, and a teacher at North Mississippi Retardation Center. This number includes an evaluation team that serves the entire state of Mississippi.

The evaluation team, consisting of a psychology technician, social worker, educational coordinator-corrective therapist, and a speech pathologist, evaluates all referrals utilizing needed consultants. Referrals come from the Department of Public Welfare, public and private schools, regional special education screening teams, regional mental health and mental retardation centers, university and college programs serving exceptional children, physicians, and private citizens. Any child who is suspected to be both deaf and blind will be

evaluated. Once a child is referred, the social worker contacts the family and arranges a time for the evaluation. A comprehensive evaluation often takes two or three days and facilities are available for parents to stay overnight at no cost during this evaluation. The social worker contacts other agencies to compile all background information on the child before the evaluation.

The evaluation consists of phychological, education, speech, audiologocal, and medical assessments. If necessary, an evaluation by a registered corrective therapist is included. Consultants provide ophthalmological evaluations if the child has not had one or if eye pathology, such as glaucoma, is suspected. The evaluation team meets immediately before the evaluation to discuss the best instruments to use with the particular child, and immediately after the evaluation to discuss the results. Parents are encouraged to participate in each phase of the evaluation and specific assessment instruments are explained to them. Often times video tapes are made for later review by the parents and the evaluation team.

If the child is found to be deaf and blind, a request is made that the child's name be added to the deaf-blind register. This enables the child to receive all services of the Mississippi Deaf-Blind Program. A decision is made by the parents, in consultation with the social worker, regarding the most appropriate site for the child's educational program. Local facilities are surveyed to find adequate community placement for the child. Itinerate teacher services are available to the parents. Programs are written using the child's specific strengths and needs with regard to the particular program the child will enter. The evaluation team collaborates in writing such programs so all areas are covered and they meet the total needs of the child's development. Periodic re-evaluations occur annually and each child's progress is noted quarterly.

If institutional placement is desired and deemed necessary, then application is completed and the child is either admitted or his name added to the waiting list. In the event that local services are available, the evaluation team consults with such agencies and makes recommendations for programming. Follow along and progress on the IEP is noted and recorded by the evaluation team in such instances. If no local services are available, the evaluation team serves as consultants to any agency or group that wishes to initiate local community services.

The itinerate teacher visits each child who is receiving home training services at least once a week. Such training involves parents, siblings, and often other family members. The teacher checks the child's progress, answers questions, and instructs the family on appropriate programming techniques using a prescriptive method. The itinerate teacher's duties often include social work responsibilities of making families aware of local agencies and perhaps referring the family for services to local agencies.

The Ellisville State School residential deafblind program is a 12 month program which provides individualized developmental and educational programming for approximately 26 residents (ranging in age from 5 to 21) of Sunshine Cottage. Sunshine Cottage is licensed and certified as an Intermediate Care Facility for the Mentally Retarded which was designed and constructed for the visually impaired, deaf residents. The residential program has a staff of 3 teachers and 5 teacher's aides who are under the supervision of the program coordinator. The educational staff works cooperatively with the cottage staff and the Foster Grandparents to provide total individualized sequential programming which should extend throughout the waking hours of the resident.

Individualized programs are developed as needed in the following areas: sensory stimulation, motor development, perceptual development, daily living skills, communication, socialization and pre-vocational training.

The children who are referred to Sunshine are first evaluated by the evaluation team and referred, as it is the opinion of the staff that, based upon available data, the Ellisville State School program is the most appropriate placement for that person and is considered to be the least restrictive environment available for that person at that point in time. Each child is staffed annually by the Habilitation Team which is composed of the program director, registered nurse, registered dietitian, social worker, unit director, psychologist, house parent, parent or guardian, the child and others as deemed necessary.

During the staffing, the child's strengths and needs are listed with his needs prioritized. The teacher responsible for the child's programming presents the child's IEP which are included in the child's habilitation plan. The habilitation plan covers the child's growth and development on a 24 hour basis thus making the IEP an integral part of

the IHP.

The child's progress is noted monthly and quarterly by the teacher and monitored by the program coordinator. In addition to the habilitation team's annual staffing, the children are evaluated by the Deaf-Blind Evaluation Team. The teachers are responsible for all educational programming. The cottage staff is being included as program aides in all areas of programming, i.e., feeding programs, bathing and dressing programs, tooth brushing programs, toileting, as well as class room activities. An example of a schedule for the cottage life people is as follows:

6:00 - 8:00 Morning toileting, bathing, dressing, and bed making by Resident Living Staff, assignment to groups.

8:00 - 8:30 Breakfast-Educational Staff, R.L. Staff and Foster Grandparents.
Toileting
Tooth Brushing

8:30 - 9:15 Bathing and dressing programs - Educational Staff, Teacher's Aides and Program Aides under the supervision of the Teachers

9:15 - 9:30 Deaf-Blind Educational Staff break
Program Aides working in the JCEC classes will break

9:30 - 9:45 Program Aides working in Cottage will break.

9:30 - 11:30 Deaf-Blind classes—D-B Staff, Program Aides and Foster Grandparents.

10:00 - 10:30 Snack in the classrooms.
Toileting.

11:00 - 11:30 Lunch break - Half Resident Living Staff

11:30 - 12:00 D-B Educational Staff lunch
Half Resident Living Staff will take lunch break.

12:00 - 12:30 Recreational activities in the cottage—
Educational staff, RL staff, and Foster Grandparents
Mon., Wed., & Fri. - Planned by Educational Staff
Tues., and Thurs. - Music Therapy

12:30 - 1:15 Noon Feeding Program - Educational Staff, R.L. Staff and Foster Grandparents.
Tooth Brushing
Toileting

1:15 - 2:00 Naps - 2nd Shift and Foster Grandparents will assist in getting children to class and assignments to groups.

1:15 - 1:30 Rest in bed for some children.

1:15 - 1:30 Deaf-Blind Staff break

1:15 - 1:45 Resident Living Staff will take break.

1:30 - 3:30 Deaf-Blind Classes - Educational Staff, Program Aides and Foster Grandparents.

3:30 - 4:00 Snack in cottage - all staff
Toileting.

4:00 - 4:30 Deaf-Blind Staff report writing, Inservice training, etc.

4:00 - 6:00 Group Parenting Time

6:00 - 7:00 Supper
Recreational Activities

7:00 - 8:00 Preparation for bed, i.e., bathing, dressing, etc.

8:00 - 9:00 Self directed activity time

9:00 Bed Time.

The foster grandparents are included in all program areas and are provided on-the-job inservice training by the teachers along with the program aides.

Monthly inservice training is planned for the program aides and foster grandparents by the deaf-blind educational program coordinator. The deaf-blind children receive approximately 5-½ hours of classroom programming five days a week. Approximately 1½ hours, five days a week, the child is worked with in the feeding program (morning and noon meals) which is followed by toileting and toothbrushing.

The educational staff, cottage staff and foster grandparents are working cooperatively and consistently to establish a routine in order to truly have total programming. Since the deaf-blind child's day in Sunshine Cottage begins at approximately 6:00 o'clock in the morning and ends each night around 9:00 o'clock, we feel that it is very important that programming be continued during this entire time. Therefore, all staff concerned with Sunshine Cottage are familiar with each child's programming needs and are a tremendous adjunct to our educational programming during weekends and evenings.

As the majority of clients in home teaching or residential programs neared 21 years of age, many deaf-blind educators became concerned about their future, and began to inquire of Vocational Rehabilitation for the Blind as to the services they had to offer. A few deaf-blind individuals had been served at the Addie McBryde Adjustment Center for the Blind in Jackson, Mississippi and several were employed at Royal Maid Industries, a sheltered workshop for the blind in Hazlehurst, Mississippi. In spite of this, the need became evident to establish a rehabilitation center for the

evaluation of multi-handicapped blind to determine their potential for rehabilitation services. In June of 1975, the next phase of service was begun, with the establishment of the Ellisville Center for Multi-Handicapped Blind. This project, a joint effort of Vocational Rehabilitation for the Blind and the Department of Mental Health, was an indication of Mississippi's commitment to give priority to the severely disabled, as mandated in the Rehabilitation Act of 1973.

The Center was designed to assist the field counselors of Vocational Rehabilitation for the Blind in evaluating the functioning level and and vocational potential of multi-handicapped individuals, and to make recommendations regarding their future involvement in the rehabilitation process. The Center also was to provide diagnostic teaching to those clients who had specific deficits which prohibited their referral to other rehabilitation facilities, primarily the Addie McBryde Center for the Blind.

In July of 1977, the program underwent some major revision, and, as a result, is now divided into three phases. The first phase is designed for orientation and diagnosis. Here clients receive a psychological evaluation, speech and hearing evaluation, dental evaluation, and a general medical examination. In addition, any speciality medical examinations are obtained during this phase. While these diagnostic materials are being gathered, the teaching staff determines the client's level of functioning in areas such as home management, adult basic education, and recreation. Normally the orientation and diagnosis phase requires from four to six weeks to complete. At the end of this phase, a staffing is held, primarily to ascertain whether or not the client has any medical condition that would preclude his continuation in the program.

If no medical reason for termination is found, the client enters the diagnostic teaching phase, which centers on training to remediate the effects of weaknesses discovered in the orientation and diagnosis phase. Teaching is in four main areas, as follows:

1) Home Management - including cooking, housecleaning, money management and budgeting, personal hygiene, clothing selection and care, and social skills.
2) Orientation and Mobility - pre-cane and basic cane techniques, orientation to Center and State School campus.
3) Adult Basic Education - concept development, Braille, sign language, and academics such as reading, spelling and math skills.
4) Recreation - arts and crafts, physical conditioning, recreation, and off campus activities. Pre-vocational skills are also evaluated in this area.

Other areas are covered depending on the individual needs of the client.

The Center teaching staff, consisting of three teachers and seven aides, works with clients in 45 minute periods. Special activities such as music and religious education are held on a weekly basis. During the summer, the clients have access to the pool at State School and also go picnicing and bowling. The staff is conscious of the need to integrate the client's skill acquisition into a cohesive program, thus every effort is made to practice in the dormitory the skills learned in the classroom and in recreational activities.

The final phase of the vocational evaluation is designed to pull together all of the data gathered in the previous four months, and make recommendations as to the most appropriate placement for the client. The documentation on each client is based on the specific behaviors observed and taught during their stay here. The Center uses task analysis and sequential learning techniques to chart client progress accurately, and compile reports based on strengths and weaknesses. Recommendations for future service are based on the behaviors required to participate in each phase of the rehabilitation process, from institutionalization to independent living and from adult day care to competitive employment. This enables the field counselor of Vocational Rehabilitation for the Blind to more confidently place people in other programs.

Another need became evident as clients were evaluated at the Ellisville Center for MultiHandicapped Blind, and then had no where to go for further training. The gap between institutional living and independent living, as well as between adult activities center participation and employment, was not easily overcome by multihandicapped blind people. Thus in February, 1978, a program called Opportunities Unlimited was started to meet this need. This program is the result of an increasing concern that a major portion of blind individuals, especially deaf-blind and multihandicapped, were not receiving services that were appropriate and adequate for them to attain their maximum level of functioning.

The program is currently staffed by a coordinator/prevocational instructor, a teacher's aide, and necessary resident living personnel. All departments include: Medical, Dental, Psychology, Social Services, Deaf-Blind Evaluation Program, Vocational Rehabilitation for the Blind, Mississippi Industries for the Developmentally Disabled, Activities Therapies and Food Services.

Five clients, 3 male and 2 female, are currently being served. These clients have been served by one or more state agencies working with the blind. The clients have either been non-responsive or have received the maximum benefits offered by the programs. Until this program was established, their future consisted of two alternatives, returning home or long term placement in a facililty for the mentally retarded.

The current program is residential in nature. These clients are housed in the cottage on campus serving deaf-blind. When minor renovations are completed by May 15, 1978, the program will serve five female clients and 10 male clients.

The purpose of this program is to provide the skills necessary for a blind multihandicapped individual to leave the institution and assume a more independent role in society. These include prevocational skills, self-help skills, and semiindependent living. Prevocational training utilizes behavior modification techniques, work samples from sheltered workshops on campus and statewide, and materials selected from the Southwestern Regional Curriculum for DeafBlind.

The objectives of the program are to insure that each client has the opportunity to attain his maximum level of functioning and make a smooth transition into the system of statewide services. This is done without any restrictions except age and that the client be deaf-blind or blind multihandicapped.

The three abovementioned programs, along with the support services such as group housing, being established in other communities, will enable Mississippi to offer comprehensive services to the wide range of deaf-blind individuals. Referrals will move through the initial diagnosis and evaluation to a staff review where alternatives will be outlined and decisions made as to the most appropriate resource for the deaf-blind individual. Parents and children will be encouraged to be present at this staffing. We feel that this model of service delivery offers a great deal of room for creativity on the part of program staff, and will yield much growth on the part of the clients involved.

Coordination of service and the cooperative efforts of several agencies will be the key to insure that these young people reach adulthood with marketable skills, and have the ability to work and live on a semi-independent basis.

Vocational Considerations for the Multi-Handicapped Persons

Rod McDonald *
United States Department of Labor
Washington D.C.

When I was invited to speak here I didn't quite know what I was supposed to talk about. In fact, I only learned today. What I was asked to talk about was the role of rehabilitation in serving severely/profoundly handicapped people. Since I'm not really a specialist in that field I'll be talking mostly from my own experience and those that have known me but not as a professional myself. To begin with, I've been blind since I was 3 years old. Actually, I'm only legally blind since I do have some useful sight. Roughly I can see at 10 or 15 feet what most of you can see at 200feet. I don't know just what caused my sight to disappear but I do know the condition is called optic atrophi. A deterioration of the optic nerve. I entered public school when I was 5 and stayed there through the 2nd grade but I was having trouble reading because I couldn't see the print well enough. So I was transferred to another public school, a special class to save what sight I had. I was there 2 years until halfway through my 4th grade year. Although my poor sight was taken into consideration I still had trouble reading and in spelling. My level for that was probably the 1st or 2nd grade even though I was in the 4th grade, but I was doing 7th grade mathematics. So about that time I was transferred to the Perkins School for the Blind but I went back to the 3rd grade in order to have more time to learn braille. I was at Perkins for approximately 12 years. Shortly after I started there I started having hearing trouble. At first they thought I just wasn't paying attention. After several years they began to think something might be the matter, so I began to have frequent hearing tests. They found out something was wrong but they couldn't find out what it was. By the time I was a Sophomore in high school I could no longer hear classroom discussion but I stayed in the regular class with the blind because I still had normal speech. Even today they tell me that I have remarkable speech for a deaf person and I can't really say why, except that I always took a great interest in accents. I can remember how words sounded. I do have trouble with new words that I have only seen in print through reading and I have to learn to pronounce them through experimenting and asking people if it sounds right. Most of that trouble comes from French words. I remember I got into trouble when I went into a French restaurant and asked for Cnabliss wine when I actually meant Chablis. By the time I was a Senior at Perkins I could not hear much at all, although I could usually hear some conversation if one person spoke directly to me right in front of me. I had no plans for college then because no-one thought I had the ability or more correctly they just didn't think I was functioning at that level. I had been in a backward class at Perkins mostly because of my hearing. I tended to do well in classes where I liked the teacher and poorly in classes where I did not. But no-one seemed to notice that too much. The only thing I was consistently good at was mathematics. I graduated in 1961 with no clear idea of what I wanted to do so I stayed at home for the summer and they invited me back to Perkins for a postgraduate year for the lack of anything better to do. I went back and near the end of that year someone suggested I take the college entrance exam which I did. I got an acceptable score on the verbal part and a school-record on the math part even though I hadn't taken mathematics that year. So arrangements were made for me to go to college. I went to St. Hanson's college in Manchester, New Hampshire starting in the fall of 1962. Naturally I was going to major in mathematics. But unfortunately I could not get my math books in Braille and I didn't have enough sight to read the books consistently in print. So I had changed my major several times and finally settled on philosophy. It wasn't that I had any particular interest in philosophy, but only one book was required for each class and I could usually get that in Braille in time for class. As a matter of fact all of my courses in college were chosen with that in mind. What material was available, and what material could be available. I took things like Russian geography, geology, and astronomy, not because I wanted them but because I had the material to read. While I was in college I did not go to class since I could not hear a lecture and could

** Rod McDonald is a deaf-blind man who speaks from the consumer perspective.*

not follow what was going on by sight. Usually I just read the book and took the exam. At that time I had never heard of an interpreter. And in any case, I didn't know manual communication methods then and it wouldn't have done me any good. I graduated in 1967 with a C+ average. I still didn't know what I was going to do since philosophy wasn't really preparing me for anything. I then spen a year at home doing nothing and feeling very frustrated about it. I'd keep after my rehabilitation counselor to help me get a job. Finally in the fall of 1968 he got me a job. I worked in a sheltered workshop sorting nails where I was the only one there who was not mentally retarded. I stuck that out for 6 weeks and then quit. I felt I wanted more out of life then that. But I honestly feel now that that experience was very useful to me because that's where I learned motivation. I learned I wanted something, I did not know just what but I knew it was more then that. It was another year before I was able to get in computer programming school. I was there for 9 months at a school in Cincinnati and finished in October of 1970. I then went back home to Boston hoping my rehabilitation counselor would get me a job. I was now prepared. But it was obvious he wasn't going to set the world on fire. So I started writing letters to all of the government agencies I could think of. I figured the government had more computers than anybody else, so they must have more jobs than anybody else. In November of that year I was able to arrange 6 interviews in Washington, D.C. I think my rehabilitation counselor was embarrassed. He paid my way to Washington for the interviews but he had nothing to do with arranging them. I was offered a job by the Department of Labor as a computer programmer and I was lucky to start at the GS-7 level. At that time that was an $8,000 job. I've been working for the Department of Labor ever since and am now a GS-12 computer specialist. My salary has about tripled since then. I think that having a job and finding I could do it and do it just as well as anybody else in the office gave me the confidence I needed. The confidence I got nowhere else. I know now that given any assignment at work I can do it just as well as anybody else and better than most.But as I found my confidence gaining I also found that I was losing what I really wanted, contact with people. The better I got with computers, the farther away I got from people. So 2 years ago I decided I wanted to try graduate school. I did not know any manual communications then but I thought maybe it would be a good idea, that I could learn it. When I had graduated from college before I did not think I coulo do any better than that. That was my level and that was it. But now I felt I could. I applied at California State University at Northridge and was accepted there.But my under-graduate grades were not good enough to be accepted. I was then accepted on academic probation. I took 3 upper division courses in computer science. with the understanding that I could stay at my master's degree program if I maintained on appropriate average for those courses. I started out by taking 3 weeks of intensive training in sign language and then used an interpreter in class. I did not know how it was going to work out but once I started I couldn't stop, I found that my interpreters really wanted me to do well. I could feel their enthusiasm. The director of the program used to like to tell people that I learned sign language in the first place so I could hold the interpreter's hand. I was very embarrassed the first time he said that but since then I don't mind much at all. The truth never hurts. I took a semester of computer courses and with the encouragement of my interpreters plus my computer background I was able to get the best grade in the class on everything I did. Every bit of graded homework, every test. Several times my work was held up to the class as an example of what a programmer should do. I didn't want to show anybody else but I wanted to do well. I then started my master's degree program in the summer. A program called the National Leadership Training Program, in the area of the deaf-blind. There are 5 or 6 classmates of mine here now. The major was educational administration, something I did not really know but wanted to get into. I'd like to have a chance to participate in the decision making. The decisions that are made about handicapped people. With the encouragement and the stimulation in being able to compete on a normal basis with other students and I might add very qualified students. I really put everything I had into it. I ended up with a straight A average for everything I did, in all 39 graduate units. The question now is why did I get an A average there and a C+ average as an undergraduate. The answer is the support I had. I had 2 interpreters in each class. They changed places every 20 minutes so they wouldn't get tired. The only problem with that was they couldn't change me every 20 minutes. We'd normally have an 8-10 hour class day. I was pretty tired after having followed everything manually. But I felt I was getting a nearly even chance and that was

what counted. In addition, I had someone to attend class who would take notes for me and the notes were later copied in Braille. With that kind of help I couldn't have let anybody down by failing anything. Just had to do well. Oddly enough after finishing my under-graduate work I felt I had done the best I could and there was nothing else I could accomplish. After doing what I did in graduate school I did not feel I had reached my potential yet. I did not know just what I wanted to do but I do know I wanted to get away from computers and work with people. Last fall I applied at the University of Southern California for their doctorate program and in January also applied at Gallaudet College for the same thing. Last Saturday I got word from USC that I've been accepted for the doctorate program there. After finishing here I'll be going to Los Angeles to discuss that with them. I'm very hopeful about that and more than a little excited about it. My main experience with rehabilitation came when I was trying to get a job and I've already explained how that didn't work out too well. I have found that the biggest single problem for any handicapped person no matter how intelligent or low-level they might be is the attitude of other people. People who do not understand, often are afraid or re-coil in one way or another. They definitely don't seem to react properly. Maybe I can explain a few problems I've had that will illustrate that. Last month I flew from Washington to California and as usual I arrived at the airport early. I told the people at the airline that I was deaf and blind and would like assistance getting to the plane. They said fine. I had gone through the same airline and same place before so I didn't expect any problem. They asked me to wait in the lounge and they said that someone would come for me when the plane was ready. That also was standard. I waited for 2½ hours and they never came so I found my way back to the desk and asked what had happened. They said the plane had already left, they had just forgotten to come and get me. I was very mad about that. Partly because a friend was to meet me at Los Angeles before flying up to San Francisco from there. They promised to page my friend in Los Angeles and tell her about that. In the meantime they rushed me out to the runway where there was another plane all ready to go. And I was flown directly to San Francisco arriving one full hour before my original flight did. But they had never paged my friend in Los Angeles. They failed completely. I received a $50 check as partial compensation from the airline. They refused to refund my ticket on the ground that federal regulations prohibited it. I doubt that and am going to find out whether it is or not. I may even sue them if it doesn't turn out the way they said it did. Another problem happened with a friend of mine last winter. He was only blind, he has no other physical burden and his wife is also blind. They have 2 sighted children. They were making a flight and asked the airlines not to pre-board them, and not to put them in the bulk-head seats. The airlines said fine. They went on the plane with everybody else and they were seated where they wanted to. But then the stewardess said they had to move, that the bulk-head seats were reserved for handicapped people. Furthermore, the husband and wife could not sit together, because she said there was a regulation about 2 blind people sitting in the same row. Since they had 2 children with them that was a problem. When my friend started arguing the stewardess tried to push him into the chair. He then found there was a blanket on the seat so he asked why. She said because handicapped people are incontinent - that means you cannot control your bladder. This for someone who is only blind and nothing else. My friend is suing the airline for ½ million dollars. I have also flown to Europe several times. I told an airline when I got there I'd like assistance in finding a taxi. They met me with an ambulance. Another time I was flying to Italy with 3 other blind friends. Everything was arranged several months in advance. But 4 days before we were to depart I received a call from the airline saying we had to fill out a medical form signed by a doctor saying it was safe for us to fly. This was a real problem because one of the group lived in New York, another in Chicago, another in Maryland and with me in Washington. I had to get the forms to them in time and they had to make doctor's appointments in order to have a doctor sign them. Most of these problems are not really regulations but someone who does not understand thinking he does understand. There is no such regulation saying 2 blind people can't sit in the same row on a plane. There is no reason why you should be met with an ambulance. There's no reason why I should be asked to sit in a wheelchair as I often have. They just don't understand. I think part of the problem is the public has not been properly educated. This is particularly true of the low-level of those who can't function quite independently. People like that are often treated just as badly. It means so very much to just say a word of

encouragement now and then. I don't particularly consider myself to be severely or profoundly handicapped. I'm blind but I don't mind that very much and I'm deaf and I don't mind that either. But there are deaf-blind people who just can travel alone. When they do, all they need is a little bit of assistance, nothing very much, nothing that would put anybody to real trouble. And yet just to be put on a mere plane, not to be able to speak to anybody for 5 or 6 hours is a very depressing thing for a person to have to go through. That is the biggest single problem for a severely or profoundly handicapped person. The loneliness. The feeling of no-one caring. Of having to amuse yourself with your own thoughts for a long period of time. In the case of the blind or the deaf, often it is the most capable person who is held up as a model. This is a successful blind person or a successful deaf person. They point to the ones who are lawyers or whatever it happens to be. What society considers to be a successful job. With the lower-level, those who can't function at that level at all. It seems it is the lowest level held up. These people are what we have to deal with. It is not even their good points that are held up but their weak ones. Everybody has some sort of a strong point. Maybe the best he can do is to make a pot-holder, maybe he can only work in a workshop. Maybe he can't even do that. But he has to do something well. And it's very important to that person to feel the fulfillment of knowing he's doing something, of being productive. You gain a lot of confidence from that. I didn't have any confidence until I had been working for several years. I could just look at my paycheck and know I was doing something right. Basically there are 5 steps in helping a handicapped person. First you have to locate them, second you must communicate with them, third you must educate them, fourth you must rehabilitate them, and fifth you must integrate them into society. I think at least an adequate job is being done in trying to educate, communicate and locate. We still have progress to make but we're trying. Rehabilitation of the severely handicapped is something fairly recent. We don't have any evidence of a deaf-blind person ever being employed before the beginning of the century. But I think the most important of all of these steps, the most important thing to the person involved is to be integrated somehow into society, to find his place. Maybe he can't do it at the level everybody else can. But what difference does that make. He has someplace. I had a supervisor once who told me, "Why should people work so hard to find jobs for the handicapped. My daughter can't find a job and she isn't handicapped." His daughter had been a drop-out from school. I didn't consider that a very valid question. I personally know of 5 deaf-blind people who have master's degrees and I know of 3 who are either working on a doctorate or are seriously considering it. But I don't want to stress the high level people at this time. Most of you are not working with high level people, possibly you never will. But you may find the people you do work with can do better, maybe not much better, but probably better. Dr. Peter Samon once defined the role of rehabilitation as helping the individual become the best he has it in him to be. In terms of philosophy that is very true. The goal of the rehabilitation counselor should find the best possible position for his client. Not the safest one. Many rehabilitation counselors only want a safe placement because that looks good on his record. He is evaluated on the basis of how many clients he has placed and not too much consideration is given on just where they're placed. After getting counseled I was placed in a workshop. My counselor was given credit for placing me but I personally wouldn't give him much credit for doing it. I think I can do better than that. I'm now learning more than he ever thought I possibly could. Yet the workshops are a very good possibility for those who cannot do better. It's a fulfilling occupation. It means they're being productive. There is a very real sense of security in knowing you're bringing home some money and you're actually earning it. I think more emphasis should be placed on social skills because many of the severely handicapped will have to deal with other people, the so called normal people at one time or another. I know that was a very difficult problem for me. I have only been active, socially, you would call it, over the last 4 or 5 years. The director of the program in California likes to tell people I'm the world's only deaf-blind playboy. In a way it's probably true. I have a key to the playboy club. I got that not so much because I wanted to but I wanted the confidence of knowing I could. I then found out it was pleasant to go there. Sometimes I just wish I could express how I feel, how many other handicapped people feel. The frustration and futility, why can't people understand. I can do this or I can do that, why won't they give me a chance. Once I've done it why won't they believe it can be done a second time. One thing I'm very interested in is what the deafblind people who can go to college can go for a career. That was the subject of my thesis in

college. I found there were at least 30 deaf-blind in college last year and yet nothing is being done to find placement for them, to find a real career. They're probably going to college over the objection of their rehabilitation counselors anyway. Few believe they can do it. I hope that computer programming will be considered as a possibility for these because it's something that mostly involves the mind, not the senses. I've done well and there are a couple of others who have too. It doesn't really take a mathematical mind, just a logical one. And it is one opportunity for a handicapped person to earn the kind of salary that most other people think is very good, not just the salary for handicapped people. One thing that I am also very interested in is what you might call educating the public. Many administrators project a very poor impression of what a handicapped person is. A number of years ago there was a leading administrator in work with the blind. And at a large conference he defined blindness as follows:

> Blindness is dying, when in the full current of his life blindness comes to a man; it is the death, the end, of that sighted life. It is superficial, if not naive to think of blindness as a blow to the eyes only. Because I don't. It is a destructive blow to the self-image of the man, a blow almost to his being itself. And how is the public going to take that.

It's not so much that he didn't really know what he was talking about, that was his interpretation. But I'm blind and I don't feel dead at all. I don't think blindness is dying, what it might be is a very traumatic experience for someone who has reached adulthood and then loses his sight suddenly. But he can adjust and perform just as productively as he ever did. Without sight and without hearing I find I can understand things a lot better than I would if I had both senses. That isn't to say that blindness or deafness or deaf-blindness is an advantage. It's nothing of the sort. But it's not the catastrophe most people think it is. If I found the best I could do was work in a workshop then I could be happy doing that. Unfortunately for my piece of mind I don't feel I was intended to do that. I think I can do better. I don't know how much better. But probably many of the people you work with can do better than their present level of functioning. I hope you will help them, I hope you will help them find what their level is. Thank you.

Parent and Family Services

Mark Frazer
Mountain Plains Regional Center
Denver, Colorado
Ben Cacioppo
Meyer Childrens Rehabilitation Institute
Omaha, Nebraska

The content of Parent and Family services is hardly new. For thousands of years, extended family systems provided comforting support when tornadoes destroyed homes, when a handicapped child was born, when a crisis occurred. In those days help was comprehensive: the wizened grandparent assisted with socio-emotional problems; uncles and aunts gave financial assistance; and it was a family project to build a home. But let us remember that Death was a frequent visitor and that few resources existed for families that could not cope. Settlement houses, the burning of the "crazy", and leprosy colonies were accepted as feudal and post feudal "facts" of life. Our "colonies" of the 20th century have been emancipated from the dank grisly grim of the Charles Dicken's era. In many states however, they continue to be major respositories of severely handicapped children and adults. Despite efforts to humanize state institutions they remain *affectively* vacant, not affording children the opportunity to develop long term attachments. To be sure, there are some children who have little such potential or who have no parents, but "one of the most basic rights is that of children. . . to live with their own families."[1]

Historically, there have been numerous rationales for the removal of a severely/profoundly handicapped child from his/her family:

1. A normal family cannot endure the psychological stress.
2. A normal family cannot endure the financial cost.
3. A normal family cannot marshal and manage all the resources needed by the child.
4. A normal family does not know how to train and educate the child.
5. It is cheaper to bring disabled persons to a place which has all the resources and 24 hour-a-day programming.

In general it has been thought that the family could not provide a stimulating habilitative environment and thus children were placed in institutions and services were centralized.

The invidious portion of this was that centralization resulted in fewer community-based services for families that chose to swim against the current and keep their child at home. The "colonization" of handicapped was spurred on by a gradual reduction in the size of extended families. Aside from "exceptional" cases like Helen Keller these rationales were not questioned.

Legally, the years since the famous Brown vs. Topeka Board of Education (1954 decision) have been fraught with attempts to apply the notions of equal opportunity and due process to the handicapped and their families. Perhaps, no one has so aptly summarized the segregationist problem as Wolf Wolfensberger:

> When we review society's efforts to handle deviancy, we can readily classify these efforts into four categories:
>
> -destruction of deviant individuals,
> -segregation of deviant individuals,
> -reversal of (the deviant) condition,
> -prevention of the deviancy.[2]

One might well interpret PL 94-142 and the 1973 Rehabilitation Act as significant steps to reverse the condition by the establishment of educational/training mandates and the promulgation of civil rights for the handicapped.

Recent court decisions have attacked the old rationales. With counseling, normal families can not only cope with the stress but may become more unified.[3] With parent training, families can learn specialized childrearing techniques and can provide an appropriate habilitative environment. The issues of financial assistance and advocacy continued to be difficult but recent laws mandating free public education in the community relieves many burdens. The lack of a national health care plan continues to impose a heavy burden upon handicapped persons and their families, and mitigates the flow of the medically needy handicapped from institutions to the community. Importantly, in terms of service planning, it has been found that the provision of Parent and Family Services is more cost effective than services institutionally delivered:

> In search for further residential alternatives, agencies have learned that when prevention of out-of-home placement occurs through the provision of supportive family services (e.g., babysitters, resource teacher and parent groups, homemakers, adaptive equipment,

crisis assistance), the overall cost of community services can be greatly reduced.[4]

Thus the basic philosophy of Parent and Family Services is that wherever possible and appropriate the placement of choice is the family, and that the services system should be so designed as to maintain, in fact, to nurture the growth of, the individual in his or her home. For within the family and in the community:

> ...Role perceptions and stereotypes are known to exert considerable influence on behavior... retarded children who are placed into special classes underachieve grossly when compared to their retarded peers who are carried in regular classes, even without any special attention.[5]

Supportive Roles

Social positions are distinguishable from the individuals that occupy them. These positions consist of many behaviors which cluster together to form a "role." For example, the role of mother may consist of homemaker, babysitter, first aid specialist, cook, transportations artist, etc. All roles have social status, usually defined by societal norms: the President has more status than the Secretary; the Teacher, more than the Student: and thePrincipal, more than the Teacher. Thus role represents the *link* between the individual personality and the social order.[6] In many ways, Shakespeare was right:

> All the world's a stage,
> And all the men and women merely players.
> They have their exits and their entrances;
> And one man in his time plays many parts.
> *As You Like It*. Act II Scene VII 139-142.

Family Roles

The prime task of families with children is childrearing. Of course a desirable prerequisite is the establishment of a sound communications pattern that allows the family structure to change as the family encounters new experiences. Quintessentially one might hope for a stable family in which all members experience satisfaction. However, families tend to stabilize at all different levels of satisfaction. Regardless families with profoundly handicapped children are faced with two immediate problems:

1. Role differentiation.
2. Role ambiguity.

The rearing of a normal child calls for the fulfillment of many roles but grandparents and history give the new parent ample knowledge upon which to base decisions. Likewise, there are many public and private resources to assist with special problems or to clarify roles and responsibilities.

For the parents of a severely/profoundly handicapped child, however, there are few resources in the community. Often family members lack knowledge of child training techniques and frequently even professionals are less than clear about educational implications. What roles should parents choose? How should a parent clarify the role? It is a problem of role differentiation and clarity.

Optimally the parent should fulfill the following roles:

1. Student. There is much to learn: special feeding techniques, communication techniques, information about rubella, CP, etc. The parent must have access to information and training.
2. Teacher. Is it possible to be a student and a teacher at the same time? Yes. Parents can and should participate with the special educator in data collection and special educational strategies, e.g., in toileting.
3. Advocate. Advocacy means to "call out." A child advocate does not wear a steel helmet and crash into the state legislature (though it has happened!). Rather a child advocate works constantly to mobilize the system for his/her child. It means attending IEP meetings, assisting in planning, taking an active part.
4. Manager. For younger children case management usually falls to parents. There is some serious question, however, that when the child is in late adolescence the normal emancipatory process should occur. At this time there should exist a range of placement alternatives and case management services should be available to persons placed in the lesser restricted or semi-independent situations.
5. Mother and Father. Obviously mothers and fathers will act as mothers and fathers. Why is it so important? Children absorb an incredible amount of information from their parents during the first six years of life. Mothers and Fathers are early play partners, nurturers, sex role models - in fact, models for about everything! A child learns about social interactions from maintaining an "attached" relationship to one or both caregivers. It is this social, affective learning that is difficult to replicate in the classroom. In most programs caregiving teachers are sincere and

skillful, but because of a rapid turn-over rate, children may be denied the opportunity to develop the attachment skills so critical to social development.

This is not an exhaustive delineation of family roles. There are additional parent functions and siblings can contribute in major ways to a brother or sister's development. And, not all parents have the capability to act as a manager, advocate, teacher, or student.

Teacher Roles

The prime function of the teacher is to create planful change in his/her students. The assumption is that all children have the potential to learn and that the teaching strategy, not the handicapping condition, determines the amount of change. The explosive growth of special education technology has, in fact, led us to a point beyond intuitive teaching. Parent and teachers must now collaborate to design an annual educational plan. The new law recognizes the need for individual planning, but if plans are to be comprehensive, educational professionals will need daily time for plan-making, writing, meetings, and evaluating. Expanding educational technologies and new laws thus create new and/or redefined roles.

1. Student. The prerequisite for designing an individually unique child plan is bredth and depth of teaching skill. The technologies of Marc Gold, Dennis Stoddard, Jan Van Dijk, among others must be disseminated. Teachers should have some notion of educational program design is each of the developmental lines: gross motor, fine motor, communications, cognition, social affective, and daily living skills. It is likely that our knowledge will continue to grow and it is the professional responsibility of the educator to deliver current, effective services.
2. Planner. In the past we have let the service system dictate our long range planning. For example, if the community had one group home and one institution, educational programming was frequently bifurcated into high functioning (group home) and the low functioning (institution) classroom. The current law defines long range as one year and this seems all in all somewhat short minded. Before early adolescense, educational programming should develop a distinctive prevocational flavor. Why sort or classify crayons when real life sorting of diodes (an electron tube) is possible? In short, the teacher should plan meaningful work/learning activities of increasing complexity and demand.
3. Parent Trainer. It is well known now that involvement of parents in the educational program maximizes the child's learning. Eliciting parent involvement is not easy and many parents do not have time for evening or morning training modules. One school particularly interested in increasing child learning scheduled weekly home visits during which daily living skills were conjointly taught by parents and teachers. There are numerous resources to assist in training parents to train their handicapped child and most schools are successful in establishing a joint parent-teacher resource room- sort of an adult "student" library.
4. Manager. Whether supervising volunteers (parents, students, etc.) or aides, the teacher is placed in a management positon for which he/she has little professional training. The issue is not survival, for teachers, aides, and volunteers will work together, establish communications patterns, and achieve a level of satisfaction. Rather, at risk is effectiveness. What approaches will foment dissent; what, teamwork? Allow the authors to suggest the following: Planning:
   a. Study possible aide/volunteer tasks
   b. Organize a staff in-service on working with aides and volunteers. Effective in-class management takes time and planning.
   c. Plan *exactly* what aides and volunteers will do. Be specific. Perhaps write individual job descriptions. Include tasks that represent the range of in-class responsibilities - exciting to mundane.
   d. Clarify lines of communication, supervision, and methods of accountability.

   Recruiting:
   a. Actively recruit aides and volunteers, and especially parents.
   b. Contact the local newspaper, TV, and radio station for public service announcement.
   c. Contact churches, shopping centers, and businesses.
   d. Warning: do not recruit more persons than are meaningful tasks.

   Interviewing:
   a. Be friendly and purposeful.
   b. Identify *strengths* and *skills*.

c. Review the job description.
d. Do not oversell the job. If the job and person match, enthusiasm will develop.
e. Discuss working hours, expected outcomes, school expectations.

Orientation:

a. First of all, have an orientation and make it formal and required!
b. Content or topics to be covered:
   (1) Purpose of your setting.
   (2) The role of the volunteer.
   (3) Setting rules and regulations.
c. Have an agency/setting tour.

Training:

a. Identify the first few weeks as on-the-job training.
b. Furnish training resources.
c. Plan frequent question and answer sessions, perhaps utilizing the more experienced volunteers or aides.

Supervision:

a. Allow a regular time for supervision which has two focal areas:
   (1) Administrative. The defining of policies and procedures. Staff problem-solving.
   (2) Teaching. Make this a growth experience for yourself as well.
b. Plan periodic evaluation and feedback.

On Recognition:

a. The most effective recognition is in the day-to-day relationship. Insure that activities are meaningful, useful, needed.
b. Be sure that aides/volunteers are on the normal information dissemination routes, e.g., in-office routing slips, have their own mail box, etc.
c. Hold periodic formal recognition ceremonies where letters of thanks are rewarded. *Do not wait until the aid/volunteer leaves.* That is a different ceremony.

5. Information and Referal Counselor. By the nature of their positions, special educators, like other helping professionals, are frequently seen as primary resources by the families of their students. In general, primary resources by the families of their students. In general, primary resources are those which have successfully solved problems in the past, i.e., family members, close friends, playing tennis, having a drink, taking a deep breath, etc. In some ways, teachers are significant members of the extended family. They bring skill and hope to focus upon a familiar problem. Thus when another or related family problem arises, the special educator may innocently and hesitantly become involved in a family crisis.

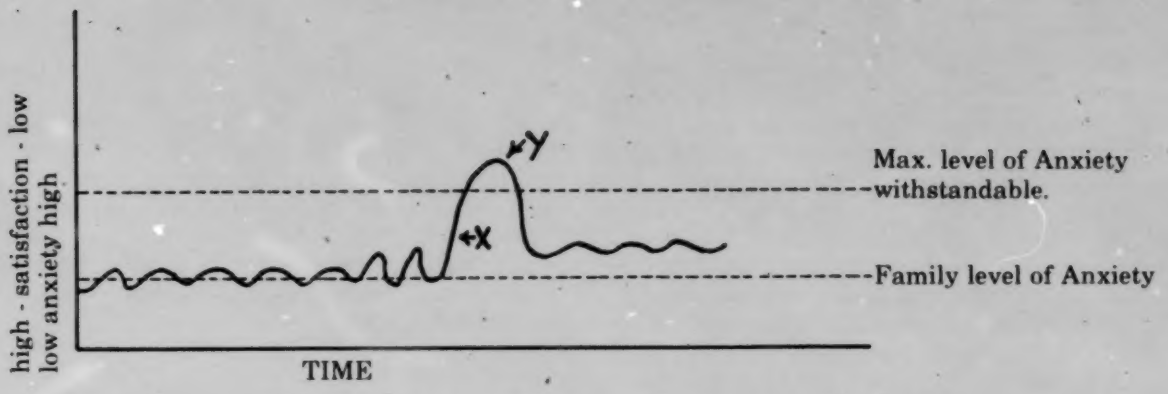
What are the prescriptions for fulfillment of this role;

a. Knowledge of community resources.
b. Skill in communications.
c. Understanding of the *Referral Process.*

The teacher represents the link between the family and community resources, which includes school social workers and psychologists, medical, mental, and social service agencies. He/she often has no communications training and in some cases (e.g., the teacher hired out-of-state) has little knowledge of the human services system. And yet, a call may come in the evening; a parent may make a special appointment; or the teacher may receive an unexpected, after-school visit. As a nonmental health professional but as a special educator, there are several things the teacher can do to prepare for this situation:

a. Be sure the educational setting has a two or three page pamphlet of community resources.
b. Ask the school social worker or psychologist to give an in-service on communications skills (e.g., feedback, paraphrasing, reflective listening, dealing with anger).
c. Become familiar with the Referral Process and the Characteristics of a Family Crisis.

In general the more advanced the crises, the further the individual is from familiar resources. A person in crisis usually experiences a sense of helplessness, a sort of lack of his/her traditional ability to solve problems and a consequent loss of self-esteem. A crises additionally produces the three A's of anxiety, ambivalence, and anger - all interwoven by unsuccessful attempts to solve the presenting issue. These issues are regularly multifaceted, but there is usually a "precipitating stress" - a small event which pushed the family "to the brink and over". In short, all persons and families have a level of satisfaction (Technically this is the more complex phenomenon of anxiety) that is normal. But the stress, perhaps the birth of a second handicapped child, destabilizes the family system by creating uncopably high anxiety and concomittantly low satisfaction. The following graph illustrates the normal flow of a crisis:



x - precipitating stress.
y - helping intervention.

While the chart shows return to a "normal" level of anxiety, this is dependent upon effective intervention, though not necessarily professional. Occasionally the crisis is resolved but residual tension creates a slightly higher level of anxiety. Thi[s] umulative effect has the tendency to make some families more at risk to a precipitating stress. These are thus some broad characteristics of a crisis.

As an educator, your job is to make a *Referral* to a mental health professional. An effective referral greatly facilitates the helping process, just as a poor one (e.g., giving out a phone number) may result in delayed service. Quality of performance in this role is not easy. It requires genuine interest, controlled affect, a structured permissiveness, an ability to listen reflectively, and a framework for action. The Referral Process is hardly cannonized; however, the following guidelines give an indication of strategy and flow:

a. The individual expresses a need for help. Initiative has been taken.
b. The problem is defined. Explore decisions made and solutions tried but unsuccessful. Just exploration is enough. Avoid "why" some tactics failed.
c. Negative feelings are expressed often with intensity. Anger, fear, shame, and guilt are normal in a crisis. The Referral Specialist must avoid shock, argument, sympathy, and reassurance, but should explore feelings sincerely, accepting, recognizing, and clarifying. If possible, sources of frustration may be identified.
d. Positive feelings are expressed. The presence of strong positive and negative forces creates ambivalence, a state of frustrating indecision - a characteristic of a crisis. These feelings also should be accepted, recognized, and clarified.
e. Positive and negative feelings are recognized by the individual as okay and normal in this situation. Rapport is well established with the educator, and the opportunity to make a referral often presents itself. It is at this point (often these stages occur in the initial meeting) that a joint interview with a mental health professional may be planned. Numerous other strategies may be appropriated and the client should be encouraged to act with as much independence as possible. Supportive actions may be given to insure the linkage.

With an effective referral the mental health professional may only briefly review a,b,c, d, and e, and move immediately into problem-solving:

f. Identification of alternative decisions to be made.
g. Choice of an alternative and positive action.
h. If goal is achieved, insight is developed and self-esteem restored.
i. Continued action - effect - building of self-esteem.
j. The feeling of need for help decreases.

The role of Referral Specialist is a function of the Special Educator's vital importance to families with handicapped children. A skillful referral is often as effective in reducing the crisis as the problem-solving treatment. It is a challenging, profusely rewarding task.

A final note about crises: There is a tendency to think that crises are usually "psychological." In fact many crises are purely existential, i.e., the precipitating stress may be a financial, health, or housing related. It is not uncommon, even today,

to find poorly delivered supportive family services. In some states, the only respite care option is the state institution. While this situation will change, the linking function will continue to be axiomatic. Crisis is an opportunity for growth and change just as it presents difficult and sometimes risk-filled decisions. It is just as important that special educators and mental health professional work complementarily in crisis intervention as it is imperative to insure the development of supportive community-based family services.

6.Organizer. The special education teacher s in their role both as planner and manager may find themselves in several group settings where knowledge of group dynamics could be most helpful i.e. staffings, planning meetings, parent meetings and meetings with aides and volunteers. While teachers do not consider themselves group leaders, I'm sure, they nevertheless continually operate in a group or team format in working with their children, parents, staff and others around them. In fact, they may even want to start their own parent-group. On the other hand, they do get group planning experience on the job, e.g. taking the children to the zoo, etc. can sometimes be a major planning task itself.

Assuming that several parents are interested and responded to your invitation to come together, you might want to be tuned into signs which would indicate that your group is indeed growing and developing or just a collection of people attending meetings. There are several group developmental models, however, the Garland, Jones, Kilodny model[7] is outlined here.

Stage I Pre-Affiliation:

Once the teacher has called a first-time meeting, there will be a certain amount of approach-avoidance behavior and exploring on the part of participants. This preliminary commitment is expected. The teacher or leader both allows and supports social distance, but gently invites trust. By providing program structure and initiation, group facilitation, exploration and direction begins.

Stage II Power and Control:

Locking horns with the reality of the group and the tasks at hand have begun. Some members may begin to jockey for status and thus power struggles among members and the leader occur. While there is individual and group autonomy, the drop-out membership crises begins. While testing behavior is certainly normal and logical, the teacher needs to be protective and supportive of others egos and continue to provide tasks, activities and clarification of power struggles and direction.

Stage III Intimacy:

Group cohesion and a sense of belonging has taken place. Dependency is evident but so is there an intensified interpersonal involvement. Good feelings generally abound. The danger here is that it can sometimes be difficult to move ahead because the group is comfortable and may become complacent. The teacher needs to push the group on to its goals and tasks and keep them action oriented. Many groups either die here or never move beyond this stage.

Stage IV Differentiation Cohesion:

Unlike Stage III the cohesion here is rooted more in independence. There is free expression, mutual support and high communication. There are fewer power problems and the group now has identity. The teacher helps the group run itself. In the previous stage the teacher may have been rewarded by persons expressing positive feelings, now they are action oriented and doing for them selves. The group and not just the teacher are acting by making its own opportunities and now can act as a change agent for itself. Cooperative activities are planned and sustained and projects developed carry over to other groups or the community at large.

Stage V Separation-Termination:

The end of the school year has come all too quickly. The children will be entering another program or be in a new room with a new teacher. Review and evaluation and with that a moving apart and letting go must take place. The process of termination in this stage may involve some regression, and recapitulation which serves an evaluating function, helping the group to re-think and assess the meaning and value of the total experience.

Establishing an effective parent group need not be an overwhelming experience, for in the area of

the handicapped there are generally several human service agencies which could help out with this task. The group itself need not take an advisary role with school administration, but rather can assist in educating local officials to some very specific needs. We all fear the unknown and school officials should be approached by asking them to take a role which will allow them to contribute their talents to the program.

Finally, we must not forget to look in our own backyard. There is a tendency to cast covetous eyes to other parts of the community and say "see what they have!" In every area of the state we find: local public schools, educational service units, state colleges, county superintendents, office of mental retardation programs, mental health centers, head start programs, child development centers, public welfare agencies and specially funded programs and projects such as child find and early childhood education. Many of these programs will respond by simply being asked. On the other hand it may take a parent or a group of parents or better yet the parents and the school asking for services in a spirit of collaboration and compromise.

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Para-Professional/Tutor Companions for Deaf-Blind/Severely-Profoundly Handicapped in Florida

Joel R. Hoff, Coordinator
Services for Deaf-Blind Children
Florida School for the Deaf and the Blind
St. Augustine, Florida

I'm Joel Hoff, Coordinator of Services for DeafBlind Children in Florida but I don't know you so I'd like to have each of you introduce yourself and tell me if you are a teacher (working directly with children) or an administrator or "other" and whether or not you have deaf-blind children in your caseload.

I was asked to give a brief history of the education of deaf-blind children and I am delighted to do it but I am afraid it will be too brief, perhaps.

The first deaf-blind child to be truly educated was Laura Bridgman who started her education with Samuel Gridley Howe at the Perkins Institution for the Blind in 1837. (That was 140 years ago, this school year.)

I'd like to read a passage from this old book entitled *The Education of Laura D. Bridgman* written in 1890. It is a book of compiled reports by Dr. Howe and others with a forward by Julia Ward Howe. (Julia Ward Howe is also the writer of "The Battle Hymn of the Republic") I am reading this to give you an idea of how modern and ingenious Dr. Howe really was in his teaching technique. It is even more remarkable considering Dr. Howe had never worked with - nor had he even heard of a deaf-blind child who had been successfully educated.

> "It was considered doubtful when she came (4 months ago) whether it would be possible to teach her any regular system of signs by which she could express her thoughts or understand those of others; it was deemed highly desirable, however, to make the experiment, and thus far it has been successful. Common articles, such as a knife, a spoon, a book, etc., were first taken, and labelled with their names in raised letters; she was made to feel carefully of the article with the name pasted upon it; then the name was given her on another piece of paper, and she quickly learned to associate it with the thing. Then, the name of the thing being given on a separate label, she was required to select the thing from a number of other articles, or to find the article; for instance, the word key was given her, on a bit of paper in raised letters; she would at once feel for a key on the table, and, not finding it, would rise and grope her way to the door, and place the paper upon the key with an expression of peculiar gratification. Thus far no attention was paid to the component letters of the word; the next step was to ascertain the correctness of her notion, by giving her metal types with the separate letters on their ends; these she soon learned to arrange and to spell the word; for instance, the teacher would touch the child's ear, or put her hand on a book, then to the letters, and she would instantly begin to select the types and to set them in order in a little frame used for the purpose, and when she had spelled the word correctly, she would show her satisfaction and assure her teacher that she understood by taking all the letters of the word and putting them to her ear, or on the book.
>
> She then learned the arrangement of the letters in the alphabet and is now occupied in increasing her vocabulary of words. Having learned the alphabet and the arrangement of letters into words, which she associated with things, she was next taught the manual alphabet, as used by the deaf mutes; and it is a subject of delight and wonder to see how rapidly, correctly and eagerly she goes on with her labors.
>
> The process of teaching her is of course slow and tedious; the different steps to it must be suggested by her successive attainments, for there are no precedents to go by; but thus far the results have been most gratifying. She has not yet been long enough under instruction (four months only) to have gone beyond the names of substances, the more difficult task of giving her a knowledge of names, expressive of qualities, feelings, etc., remains yet to be accomplished. No sure prognostic can be made, but much is to be hoped from the intelligence of the child, and the eager delight with which she lends all her attention, and the strong effort she evidently makes to gain new ideas; not from fear of

punishment, or hope of reward, but from the pleasure which the exercise of the faculties confers upon her. No pains or expense will be spared in efforts to develop the moral and intellectual nature of this interesting child, and no opportunity lost of gathering for science whatever mental phenomena her singular case may furnish.

She has improved very much in personal appearance, as well as in intellect; her countenance beams with intelligence; she is always active at study, work or play; she never repines, and most of the time is gay and frolicsome.

She is now very expert with her needle, she knits very easily, and can make twine bags and various fancy articles very prettily. She is very docile, has a quick sense of propriety, dresses herself with great neatness, and is always correct in her deportment.

Except for the addition of certain refinements and certain equipment (auditory equipment, Braille writers, etc.) Dr. Howe's methods are basic to present day teaching of academically able deaf-blind children.—(It is hard to believe that there was a time before Braille was invented, isn't it?)

Laura started school when she was almost 8 years old and she lived nearly all her life on the Perkins campus, except for summer visits with her family. She helped and taught needlecrafts at the school for a number of years.

Deaf-blind children were and still are a very small proportion of any population. But, because of the philosophy of those early times, only those deaf-blind children who were considered academically educable were given the opportunity to attempt an education. There were perhaps only a handful during the 1800's - perhaps fewer. Helen Keller was and is certainly the most noted deaf-blind person of all time.

During the early part of the first half of the 1900's there were still only a few known deaf-blind children but as medical science improved and as the population of the nation grew; and as school truant and attendance offices came into being—oh, and also as parents became less embarassed about having defective children, more deaf-blind children were identified. The causes of deaf-blindness were generally high fever childhood diseases and accidents with few children impaired by rubella or other congenital anomalies. In the thirties - forties and fifties, several schools or departments of deaf-blind children were established. Perkins School for the Blind, The Alabama School for the Deaf and Blind, The Michigan School for the Blind, The Iowa School for the Blind, The Washington School for the Blind, The California School for the Blind and the New York Institute for the Blind were the major ones. The enrollment in any of these programs depended upon the need in the area and also depended upon a willing and able staff who would take the time and expend the energy. Some programs would exist for awhile and then "go out of business" because the children grew up and out of the program and there were no new children to take their places.

Most of the *early* teachers were teachers of the deaf who were hired in schools for the blind. The teacher-training usually came about when the teacher of deaf-blind children became competent and expert in handling the children she taught, and would accept a teaching intern. This was an informal on-the-job training.

As the need for more teachers grew, a more formal and structured teacher training program could be organized. Schools for the Blind having a deaf-blind program and an affiliation with a college to prepare teachers of the blind were usually the ones to offer teacher training for teaching the deaf-blind. (Off the top of my head I can think of the Teacher-Training Programs at Perkins - Michigan - California - Iowa.)

The teachers-in-training had courses in language development; speech; speech reading methods in reading, number concepts and mathematics, science and social studies; sense training (development of tactual, olfactory, taste dis-crimination); auditory training; Braille; anatomy and physiology of the eye and ear; and psychology (tests and measurements).

Emphasis was on teaching the academics as in regular public education. Emphasis during an evaluation was on predicting academic educability and visual and auditory function. The measurement instruments used were adaptations and subtests of a variety of standard tests used with normal children. Perkins Schools for the Blind was the leader in the United States in the Education and Evaluation of deaf-blind children and was world renowned for their expertise in the field.

After numbers of children impaired by the rubella epidemic of 1964-65 became known to have severe vision and auditory deficits, the enrollment in the existing programs increased and the numbers of programs increased. The methods and

techniques used had to be altered because rubella impaired children were, first of all, congenitally impaired and as such had no early years of normalcy to remember. Secondly, these children had a myriad of developmental and physical problems.

The majority of these children functioned at lower levels than the deaf-blind children of the past. The majority of these children were severely language impaired. It took several years, in fact we are still searching, to design appropriate developmental and language training programs for them. A special office was instituted in the Department of HEW to serve these youngsters and ten Regional Centers were established. As this group of youngsters becomes older, we are continuing to seek ways to develop them to their potential and to design prevocational training that will give them a chance at living fulfilling adult lives.

To summarize: The history of the education of deaf-blind children can be divided into two eras, the years from 1837 to 1966 the Pre-Rubella Era and the Post -Rubella Epidemic.

The Pre-Rubella Era was an era when there was much emphasis on academic education and the deaf-blind children were evaluated on their academic educational prognosis. There were fewer than 100 deaf-blind children being served in educational facilities in the United States at the end of that era. The Post-Rubella Epidemic Period saw the emphasis change to serve a more severely impaired group of youngsters. There is still a small group of children with academic potential but the majority are severely multi-handicapped.

The present philosophy of education and the mandates of Public Law 94-142 and Section 504 of the Rehabilitation Act have given new meaning to life for the deaf-blind and all handicapped children.

This has been very brief, but I hope it has given you an awareness of a concept or two.—Now to go on with the real reason for my being here and that is to describe the Tutor Companion Program that is being used to serve numbers of deaf-blind children in various community programs throughout the state of Florida.

FLORIDA'S TUTOR-PROGRAM

Florida has utilized tutor companions to serve deaf-blind children for the past seven years. In my opinion, what was tried as a stop-gap measure has been successful and has earned a place among the educational alternatives that should be considered when deciding on a placement for a deaf-blind child. I hope to prove that to you in the next few minutes.

You must be asking: Just what is a tutor-companion? A tutor-companion is a paraprofessional who serves as a tutor and a companion to a deaf-blind child throughout the school day. A tutor-companion accompanies the child to all his/her classes and keeps him involved in the lessons or activities planned for him.

The purpose of the tutor-companion program is to provide effective training and education for deaf-blind children with the least restrictive environment and at a reasonable cost.

Over the years I have been justifying the tutor-companion program with at least three reasons:

1. Because there is and has been a dearth of trained and certified persons available to teach and train deaf-blind children and also because the costs of trained personnel, when available, have caused severe budgeting problems, tutor companions have been hired to serve deaf-blind children under trained teachers or trained supervisors. (The teacher or trained supervisors referred to may come from a variety of educational fields depending on the needs of the child to be served and the services available within the community.)
2. Because individualized instruction (one instructor for each child) is necessary in most learning situations when working with deaf-blind children (or severely multi-handicapped children), tutor companions can effectively offer this service. As each child needs individual instruction, each tutor companion can be individually instructed in the child's instructional needs.
3. Because of the low incidence of deaf-blindness within the general population, few deaf-blind children reside in any locality, making it difficult to organize classes specifically to serve them. With the use of tutor companions, deaf-blind children may be placed in classrooms with children having developmental or learning disabilities and needing similar instruction. Children, no matter what their specific developmental or learning needs, *are children* with many similar instructional needs and tutor companions can often, with guidance from the classroom teacher, offer satisfactory service to the deaf-blind child and thus permit the child to live at home *in*

his own community (the least restrictive environment?).

As for the cost, as a general rule, tutor companions have been hired at the same pay rate as teacher's aides. Beginning teacher aide pay ranges from approximately $5,000.00 to $7,000.00 per 9-½ months (including fringe benefits.)

Beginning requisites for tutor companions, as with teacher aides, call for high school graduation plus a positive interest in working with and helping handicapped children. (Preference is given to those persons with more than a high school graduation certificate.) In some communities, college students majoring in special education are available, but Engineering students, Pharmacy students, Agronomy students, nursing students and others have also been successful. It is not unusual to have persons apply who have three or more years of college training. Training for tutor companions is generally given after the person is on the job. (Experience has shown that pre-training for tutor companion applicants is difficult to carry out because of timing and expeditiousness. The pretraining of several applicants for *one* position is inefficient use of personnel. On-the-job guidance and inservice training seems to be the best method of preparing tutor companions.

Areas to be included in the inservice training program are:

1. Early child development
2. Communication systems applicable for deaf-blind children
3. The implication of hearing and vision deficiencies
4. Methods and techniques used in teaching:
   a. Self care skills
   b. Motor development and coordination
   c. Daily living skills
   d. Communication skills
   e. Auditory training
   f. Vision training
   g. Academic skills
   h. Pre-vocational skills
5. Behavior modification techniques
6. Making materials for use in lessons
7. Reporting and recording pupil progress

It should be stated that the inservice training should be designed to serve the individual child and thus certain areas will be given greater emphasis depending upon the child's age and needs.

A word of Caution: After three years of being the tutor companion for the same child, the tutor companion should be transferred to some other job. A mutual dependency and attachment sets in between child and tutor companion that stymies independent growth and group interaction. (In some instances such attachment comes earlier than three years. If this is noticed it should be remedied.) While working together, a good amount of wholesome respect and love develops between child and tutor companion, and this should not be stifled. This is a fine line, but in general, a good administrator can identify when the time for a change has arrived.

Concluding Comment: People who have been tutor companions for deaf-blind children often say it is a very rewarding experience as well as a means of earning money. It has been observed in a number of instances, that being a tutor companion has changed the life style, and has given new positive direction to her/his life. (No official follow-up records have been kept but a conservative estimate would be that one fourth of those who have been tutor companions in Florida have sought more college training and are now in some area of special education of social work with the handicapped.)

The tutor companion program can be considered a three-way-mutually beneficial program. It offers the deaf-blind child the instructional help he needs. It offers the community or state an economical and effective educational placement possibility for deaf-blind youngsters. And, for those who become tutor companions, it offers a rewarding experience which often leads to new interests in and dedication to the field of human resources.

I'd like to read you a letter from one of Florida's tutor companions. It reveals her enthusiasm and dedication to her deaf-blind child, Sandy, and also mentions the last inservice seminar that she attended.

March 23, 1978

Dear Joel:

Enclosed are pictures from the paper regarding the Special Olympics. Aren't they "just about the most, to say the least?" In all seriousness tho we thought you might be pleased to see that "*our*" child is coming right along. She got 2 first places; naturally since she was the only one in her category. She also entered the softball throw. In the top picture the boy on the right "Larry" was holding her hand so unfortunately she didn't get in this picture. She was a perfect child all day.

The seminar in St. Augustine was *really special.*

Just for the record, all 3 of us were thrilled to be there, we had a wonderful time and thought those kids in the demonstration were priceless. I came home and asked Mrs. Miller (the teacher) to order Alpha-Hands for me and I also came home very proud of Sandy. Looking at what you are doing there (other than academics) we *felt* Sandy's program is pretty much the same, and *hope* you do too.

Mrs. Chesbrough was impressed with the tutor companion who took her child out into the community and was remarking about it while we were there, so I let *no grass* grow under my feet and the following Tuesday asked if I could take Sandy to our church's Salad Bar Luncheon. She was delighted that I wanted to and suggested that I look for other places to take her. (Isn't that neat?) I took her to the luncheon where there were approximately 75-80 women. I handed her a plate and we *waited in line with no head shaking or jumping*, (she was too busy eyeing the food). I filled her plate as I didn't want to hold up the line and we sat with a group of 8 of my friends, who were *very* impressed with her manners. She smiled at everyone and enjoyed every minute of it. She didn't hold back or seem uncomfortable in any way. Several people came to me and commented on how *Ladylike* she was. How about that? I was *so* proud of her!

Also since we saw you we've taken her bowling 4 times. That is a riot. She very carefully gets her fingers in the right holes but is quite reluctant to give up the ball. Then when she does, she sometimes starts down the alley to retrieve it.

Schoolwise things are much the same routine as in the fall and the goals we had outlined for her are coming along slowly but surely. This past month she has been on kitchen help and helps do all the chores associated with that: Delivering snacks, cleaning tables, washing and hanging placemats, doing dishes, etc. On the playground she is on her own for the half hour, with me just watching. She trys like mad to get into the basketball game but those boys are just too fast for her.

Have a wonderful Easter and thank you again for letting me have Sandy this year. She teaches me so much.

Fondest Regards,

Barbara

Mr. Doug Clark told me that you, here in Nebraska, are planning to initiate a tutor companion program next fall. Doug, as you may or may not know, was a tutor companion to a deaf-blind youngster while he was going through college in Florida. I wish him and all of you the very best in your endeavor.

Occupational and Physical Therapy for the Multi-Handicapped

Betty Scanlan, M.A., O.T.R.
Occupational and Physical Therapy Supervisor
West Suburban Association for the Hearing, Orthopedically and Visually Impaired
Lombard, Illinois

Two Major Goals of Presentation

a) The participants will be able to define physical and occupational therapy services and how they relate to the Deaf-Blind/ Severe-Profound population.

b.) The participants will leave with at least two specific suggestions on how to incorporate therapy services/techniques into their educational program.

My topic today is "O.T. and P.T. for the Multihandicapped", so I'd like to first discuss what O.T.'s and P.T.'s are—what kinds of things they do, how they are the same and how they are different in what they do and how they fit into the educational setting.

The usual training program for both professions entails four years of college plus an internship of six months, although there is much variation between schools. There is a great deal of confusion in many peoples minds as to what these professionals do and how they differ. The confusion stems out of the fact that there are many areas of overlapping, especially in working with children in schools and in rural areas where only one of the other may be available. Both occupational and physical therapists work on improving muscle strength, increasing range of motion, encouraging normal gross and fine motor development and increasing physical endurance. One of the major differences lies in the area of treatment techniques. The physical therapist uses such things as hydrotherapy, heat, massage, ultra sound and straight exercise to improve muscle function and coordination. The occupational therapist uses active involvement of the child in specially designed activities to improve muscle function and coordination. These activities are usually in the form of play activities with children.

The occupational therapist also is involved in helping the patient use this muscle function and coordination to meet the demands of daily living. These daily living skills include feeding, dressing, preparing for/or meeting the demands of a school or work situation. School demands would be such things as good fine motor functioning and perceptual motor abilities. Physical therapists are more often involved in ambulation and gait training while occupational therapists are more often involved in making splints and adaptive devices for example, built up handle spoons for children with weak grasping ability.

Much of what a particular therapist does well depends upon the training program he or she graduated from and his or her previous experience. With children in schools, very often a developmental approach is taken. This approach takes into account the total child in all areas of development. There are two major texts for therapists working with children.

PHYSICAL THERAPY SERVICES IN THE DEVELOPMENTAL DISABILITIES
Paul H. Pearson, M.D., M.P.H., and Carol Ethun Williams, R.P.T. Publisher, Charles C. Thomas, Springfield, Illinois, Fourth Printing, 1972.

*THE DEVELOPMENTAL THERAPIST - A PROTOTYPE OF THE PEDIATRIC OCCUPA—*TIONAL THERAPIST Barbara Sharpe Banus, M.A., O.T.R. Publisher, Charles B. Slack, Incorporated.

Therapists working within the school systems rather than in hospitals and clinics is a rather recent development. They have to learn to fit their skills and expertise into the educational process and support you as teachers in developing programs for your severely involved children. It is my personal feeling that it is terribly important that the therapists get into the classroom and work with the teacher, rather than pulling the child out for a half hour of "magic" and then returning them to you. There are definitely some specific techniques that should only be used by therapists, but the majority of what we do can fit well into the educational program and can be done as a team effort. This is especially true of severely involved children where the curriculum emphasis is much less academic and much more on tasks such as sitting, walking, feeding and dressing.

Both professions have national organizations

that maintain registries of members. If you are interested in obtaining information on whether there are any therapists in your areas, you can write directly to these organizations.

Also, I have reprints that describe O.T., P.T., and Goals and Objectives of O.T.'s and P.T.'s in the Public Schools for you.

AMERICAN OCCUPATIONAL THERAPY ASSOCIATION
6000 EXECUTIVE BOULEVARD
ROCKVILLE, MARYLAND 20852
AMERICAN PHYSICAL THERAPY ASSOCIATION
1156 15th STREET, N.W.
WASHINGTON, D.C. 20005

The next thing I'd like to do is define and discuss some of the common motor difficulties. Some of you have deaf-blind children. One of the leading causes of deaf-blindness is rubella.

With rubella children, we often find several characteristic motor problems. These children often are hypotonic—in other words, they have less muscle tone than normal or are floppy. They may also exhibit hypermobility of the joints or they are able to bend more than normal at the joints. For example, most people are only able to extend their wrists about 90 degrees, these children can go beyond that.

Any of your deaf-blind or severely mentally retarded children can have the additional handicap of cerebral palsy.

At this point, I'd like to define cerebral palsy (C.P.). Cerebral Palsy is not a disease, such as mumps, or an illness. It is a physical disability due to damage to the brain of a non-progressive nature. By definition, the damage occurs before birth, during birth or in early infancy. The damage can be from diseases such as meningitis, mumps, etc. The damage affects the immature brain in the process of development. C.P. is not a weakness of the muscles but a lack of development of normal patterns—an inability to provide a normal balance between inhibition and facilitation that is necessary for normal tone and movement. In other words, in normal movements, you have a balance between what are called inhibitory and facilitory muscles. The C.P. child does not have this. An excellent resource on C.P. is "HANDLING THE YOUNG C.P. CHILD" by Nancy Finnie. It was written in a non-technical manner for parents and others who are working with these children.

All deaf-blind or severely retarded children, regardless of etiology and additional handicaps such as hypontonia, C.P. or perceptual dysfunction will usually have some degree of difficulty in motor development.

Therefore, one of the most important steps for teachers and therapists is to assess the motor functioning level of the child.

One of the other speakers is covering assessment in depth, so I will only briefly cover this area. Of general interest, might be two reprints I have here today—one listing assessment instruments which is available from Peabody College and one comparing assessment instruments which is available from the Southwestern Region Deaf-Blind Center. Two good general developmental instruments are The Callier-Azusa Scale and the Midwest Manual for the Assessment of a Deaf-Blind Multiple Handicapped Child.

These both cover major areas of developmentself help skills, gross motor, social, fine motor, communication and cognition - and can ideally be done by both the teacher and the therapists. The Midwest one is a developmentally sequenced checklist.

The basic goal of assessment with our severely involved children is not to get an age level, but to help us program plan and assess progress over a period of time. Therapists use specific assessments such as reflex tests, range of motion evaluations, sensory integration tests, and muscle strength evaluations. Reflex testing is an especially important area. Reflexes are patterns of motor behavior that can be seen in a normal infant at certain stages. For example, the Tonic Neck Reflex (TNR) is usually seen from one to four months. TNR is described as follows—"turning the infant's head toward one side results in extension of the arm and leg on the jaw side, and flexion of the limbs on the occiput side. As you can see, this reflex must disappear before kneeling and crawling can take place. Another example is the Moro Reflex. To describe this the infant is "initially at rest; in response to a sudden banging of a hand on the table, the infant initially abducts, extends and supinates the arms and extends the digits, the thumb and fingers remain in a "c" position." This reflex has to disappear before the development of the protective extension reactions that children need to catch themselves when falling.

This should give you some idea of why it is important for therapists to check areas such as reflex development.

Therapists also are often trained to do some of

the standardized developmental tests such as the Bayley Motor Scale. In addition, there are a number of motor assessment tools that can be utilized by either the therapist or the teacher such as the Peabody Developmental Motor Scales. These scales assess both fine and gross motor development from birth to seven years of age. I have some one page reprints on normal development of standing and walking, rolling and crawling, sitting, hand skills and feeding skills.

I'm a strong developmentalist, but I have a few points I'd like to emphasize:

NORMAL DEVELOPMENT OF ROLLING AND CRAWLING

(Derived from Gesell)

1. In prone position, head rotates 4-8weeks
2. In prone position, lifts head to Zone 1 (1" off surface) momentarily 4 weeks
3. In prone position, can maintain head in mid-position 8 weeks
4. In prone position, lifts head to Zone II (2"-3" off surface) recurrently 8-12weeks
5. In prone position, lifts head to Zone II sustained 12 weeks
6. In prone position, on forearms 12-20 weeks
7. In prone position, hips low, legs flexed (bent) 12-40 weeks
8. In prone position, lifts head to Zone III (head perpendicular to surface) sustained 16weeks
9. In prone position, legs are extended (straight) or semi-extended 16-40 weeks
10. In prone position, on the verge of rolling to supine 16-20 weeks
11. In prone position, arms are extended 20 weeks
12. In supine position, rolls prone 24 weeks
13. In prone postion, pivots (moves around on axis in a circular motion) 32-40 weeks
14. Crawl (moves with stomach on surface) 32 weeks
15. Creeps (moves on hands and knees) 40 weeks to 15 months

Supine - on back

Prone - on stomach

NORMAL DEVELOPMENT OF SITTING

(Derived from Gesell)

1. When child is held in sitting position, head predominantly sage 4-8 weeks
2. When held in sitting position, head is predominantly bobbingly erect 8-16 weeks
3. When held in sitting position, head position is set forward and bobs 12-16 weeks
4. When held in sitting position, head position is set forward and steady 16-20 weeks
5. When held in sitting position, head is erect and steady 20 weeks
6. Will sit in a chair with trunk erect 24-36 weeks
7. Sits briefly on surface leaning forward on hands for support 28-32 weeks
8. Sits erect, momentarily 28 weeks
9. Sits for 1 minute, erect and unsteady 30-36 weeks
10. Sits for 10 minutes, steady 36 weeks
11. Leans forward and reerects from sitting 36 weeks
12. Sits indefinitely, steady 40 weeks
13. Goes from sitting to prone (on stomach) 40 weeks
14. Pivots while sitting 40 weeks

NORMAL DEVELOPMENT OF STANDING AND WALKING

(Derived from Gesell)

1. When child is held in standing position, lifts foot 12-24 weeks
2. When held in the standing position, supports a large fraction of weight and bounces actively 28-36 weeks
3. When put into the standing position, maintains it briefly with hands held 32-36 weeks
4. When placed at a rail, will hold on and support full weight 36 weeks
5. Will pull to feet at a 40 weeks to 15 months
6. When at rail, will lift one foot up momentarily and then replaces it rail 44-48 weeks
7. Will cruise (walk sideways; shifting the hands, first one, then the other) at rail 48 weeks to 15 months
8. Will walk with two hands held 48 to 52 weeks
9. Will walk with one hand held 15 months
10. Will stand momentarily alone 56 weeks
11. Walks a few steps independently, starts and stops; will fall by collapse 15-18 months
12. Walks fast and seldom falls; will run stiffly 18-24 months

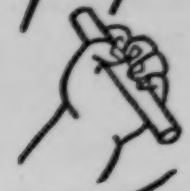
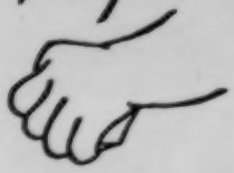
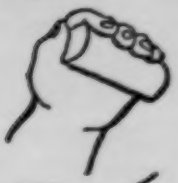
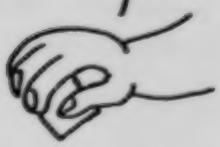
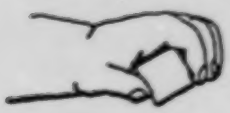
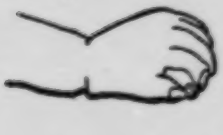
NORMAL DEVELOPMENT OF FINE HAND SKILLS

1. Hand fisted or partially open 1 month
2. Aware of hands 3 months
3. Reflexive palmar grasp 3 months
4. Holds objects *placed* in hand 3-4 months
5. Grasps toy held *near* hand 5 months
6. Palmar grasp
   Hands to mid-line
   Eye-hand coordination begins
   Radial palmar grasp (conscious) 6 months

7. Transfers object from hand to hand 7 months
8. Crude pinch-pincer grasp (opposed grasp) 9 months
9. Deft prehension
   Voluntary release (12-15 mo.)
   Two hand manipulation 12 months
10. One hand holds object, the other hand manipulates Places pellet in bottle (eye-hand coordination) Two block tower 15 months
11. Turns 2-3 pages at once
    Hand preference may be noted (but not fully developed until 5-6 yrs.) 18 months
12. 5-6 block tower (more refined release now possible) 21 months
13. String 1" bead
    Turns 1 page at a time
    Imitates vertical and horizontal lines with crayon 24 months
14. Holds crayon with fingers 30 months
15. Strings ¼" beads
    10 pellets in bottle in 30 seconds 36 months
16. Uses scissors, cuts at random
    Copies cross with crayon 48 months
17. Cut with scissors following a line 60 months

CHART 1

Sequential Development of Prehension

	Age (weeks)	Description	Stimulation
	12	Reflexive, ulnar side strongest; no reaching before eye contact.	Place objects in hand; hang toys in crib to stimulate eye contact and tracking.
	16	Mouthing of fingers and mutual fingering; retains object placed in hand; no visually directed grasp until both hand and object in field of vision.	Toys hanging within swiping reach; toys on floor within visual field and hand reach.
	20	Primitive squeeze, raking; fingers only, no thumb nor palm involved; immediate approach and grasp on sight.	Toys of varied textures, colors, sizes, shapes, and weights.
	24	Palmar or squeeze grasp; still no thumb participation; eyes and hands combine in joint action.	Place toys in different positions and distances so eyes and hands must search.
	28	Radial-palmar or whole-hand grasp; radial side stronger, thumb begins to adduct; unilateral approach; transfer from one hand to the other.	Toys that can be picked up and transferred by one hand; must be washable and safe (mouthing).
	32	Inferior scissors or superior-palm grasp; known as monkey grasp because thumb is adducted, not opposed.	Toys with smaller and thinner circumferences, to strengthen thumb adductor.
	36	Radial-digital or inferior forefinger grasp; fingers on radial side provide pressure on object; thumb begins to move toward opposition by pressing toward PIP joint of forefinger; finer adjustment of digits.	More pliable materials, including sand, clay, yarn, tissue paper, tape, and many types of finger food for self-feeding and exploration.
	40	Inferior-pincer grasp; thumb moves toward DIP joint of forefinger; poking finger, inhibition of other four digits; beginning of voluntary release.	Many small objects with a variety of shapes to examine and palpate; toys with holes and indentations to poke and explore.
	44	Neat pincer or forefinger grasp with slight extension of wrist.	Tiny objects to pick up and drop, such as dry cereal.
	52	Opposition or superior-forefinger grasp; wrist extended and deviated to ulnar side for efficient prehension; release smooth for large objects, clumsy for small objects.	Toys that provide repeat motions of release, such as blocks and container, both becoming gradually smaller.

Drawings and descriptions based upon those of Gesell, Halverson, and Parmuller

1) Use developmental sequence as a guideline only. The ages are all approximate and are not meant as hard and fast rules that a child should do a certain motor item exactly at a certain age.
2) The sequence of development will usually be the same with handicapped as non-handicapped, but not always. A good example of this can be seen with the development of feeding skills in the deaf-blind child. These children are often very tactilly defensive. (They cannot adequately see or hear the object or person, so they often will protectively withdraw from the touch.)
   As a result of this, finger feeding, which *should* come before using a spoon is very often not accomplished until after spoon feding, if a at all. This makes sense when you consider all the different textures of the finger foods children are usually given.
3) Another point to consider is that no matter which scale or checklist you utilize, the steps will probably have to be broken down to much smaller units for our severly involved children.
4) The fourth point would be to realize that knowing the steps of development is the easy part—motivating the severely involved sensorally impaired youngster to do them is the hard part. A normal child will be motivated to learn to crawl by seeing or hearing a toy or person he wants to get to; our children will not.
5) A fifth and final point would be that when a child accomplishes a motor step allow him time and opportunity to practice it in as many different ways as possible. Child psychologists have often noted that when a child reaches a major milestone such as walking that there is a plateau in progress where he becomes pre-occupied with it and practices endlessly, usually much to the unhappiness of the mother.

The next area I'd like to talk about is treatment ideas. Since this is one area that we could spend weeks on, I'd like to just give you some highlights and then spend the last part of the session talking about specific problems you might have with your particular children.

In the gross motor area, I'd like to emphasize the importance of movement in general. Childhood is very much a time of exploration through movement. For those children who are not motorically involved with C.P., the biggest problems are tactile defensiveness and lack of motivation. For the Deaf-Blind child, this tactile defensiveness starts in the crib. When mother comes in to pick him up, he doesn't see or hear her so the child is startled and cries. This fear leads to a vicious cycle that ends with the mother very frustrated and the child touched as little as possible,which is of course the exact opposite of what he needs since so much of his education depends on tactile input. It also seems to me appropriate as a cause of many of the "autisticlike" and self-abusive behaviors we see in these children. Much of the focus of P.I.E. Programs should be on interfering with this cycle, but the interfering has to be structured. Peggy Freeman, who is the mother of a Deaf-Blind child from England, has devised a system which she calls "clueing", which is excellent with infants and I think could probably be used well with many of the very low functioning children. It's basically a one way communication system where the mother or teacher "brings the world to the child by deliberately making contact with him". For example, the clue for bath might be a little warm water rubbed gently on an arm. In working on tactile defensiveness with these children, you should be careful to touch firmly but gently, too light a touch is almost like a tickle and can be adversive. It is also important to know that the head and the face are usually the most sensitive areas tactilly. If you have a child who is defensive, you can begin by rubbing his arms and hands with things such as baby powder, lotion, different materials like terry cloth and corduroy. You can roll the child up in materials and make a game out of unrolling him. You can play in different textures such as clay, sand, grass, mud and popcorn.

Deliberately bring the world into contact with the child. Remember that these are often the children that will not voluntarily touch and hold something. You will have to use your hands to guide them into touching, holding, and exploring objects. This hand over hand technique is basic, but when you use it be careful to try to fade your assistance as soon as possible so that the child will do it for himself. You can do this by gradually lessening your grasp of the child's hand and working down to the wrist and finally to the elbow.

Ideas for tactile stimulation are plentiful and many curriculum guides are available on the subject such as this one on *Preschool Learning Activities for the Visually Impaired* that is available from the Illinois Office of Education. The important thing to remember is to introduce things to be touched of as many different sizes, shapes, textures, and temperatures as possible.

In development of both the fine and gross motor abilities, it is important to remember that the deafblind and severely involved child does not have the ability to imitate what he sees others do. He needs to experience normal postures-to be propped in sitting position, to be held upright, to be held and tossed as a normal child would be. In many cases, he has to be put into positions or through motions. Motivation is the other big problem. Things that will motivate him to move forward by crawling or walking are needed. We have found that many of the children diagnosed as deaf-blind have enough vision to see a flashlight and will crawl or walk for this. Often we start with just a few inches or space between the mother and the therapist and help the child bridge that gap. Gradually we move further away and lessen our help.

Other ideas for walking are on the ambulation training reprint.

WEST SUBURBAN ASSOCIATION FOR THE HEARING, ORTHOPEDICALLY & VISUALLY IMPAIRED
1 SOUTH 331 GRACE STREET
LOMBARD, ILLINOIS 60148
AMBULATION TRAINING

1. Sheet around waist held from behind; gradually loosen control.
2. Push toys such as moveable table, large ball, chair.
3. Walk with person in back, to side, in front; holding on to arm or leg of person; walk on the person's feet - backward and forward.
4. Walk holding on to objects if possible - maybe use light as reinforcer.
5. Utilize movement through space in general to increase ability to move freely without fear.
   a) toss in blanket;
   b) roll in material;
   c) trampoline;
   d) roll on large ball or foam roll;
   e) rocking horse, sitting on tricycle;
   f) put towel around waist and lift in air - swing this way.

The feeding area is one that occupational and physical therapists can often help you with. It is one of my big areas of interest and I talk about it at length in this booklet—"Training Occupational, Physical and Recreational Therapists in the Area of Deaf-Blind"—which is available from the Texas Educational Agency.

The feeding area is often a problem area with Deaf-Blind and severely involved children. Part of this can be the result of the tactile defensiveness I talked about earlier. Feeding and speech are very connected movements and well coordinated mouth movements such as those used to suck, chew, and swallow are the foundations of speech. The normal infant spends a great deal of time mouthing objects, while the severely involved or deaf-blind infant seldom does this spontaneously. He may need hand over hand guidance to do this and to hold his bottle. If the child has difficulty sucking, one technique that often helps is to dip a piece of porous material such as cheesecloth in honey or a sweet liquid and have him try to suck the liquid out. In drinking from a cup you will want to start with small amounts of liquid and you may have to help the child close his lips around the cup.

Chewing can be a big problem. In chewing you will have to very gradually increase the texture of the food from baby to lumpy to semi-solid to solid. You may want to try to desensitize the child's gums a little by gently massaging with your finger or a secretary's rubber tip prior to feeding time, since the child who does not chew may have tender gums. Be careful not to get your fingers bitten though. One easy and safe way to hold a mouth open is to tape several tongue depressors together. If you insert these on one side, you can work on the other side more easily.

Often there is an over-active gag reflex. One of the things we find that works is "walking" with a tongue depressor or one of the rubber tips spoons back on the tongue.

In feeding, one of the specific techniques I'd like to share with you is the use of the jaw control position. It comes from the C.P. book, but I've found it helpful with all children to work on chewing and cup drinking skills.

I'd like you to choose a partner and practice it with each other to get an idea of it.

Another extremely important area in feeding with cerebral palsied children and others is the positioning of the child in the chair.

Generally, positioning should be as follows:

1. body symmetrical
2. feet on surface
3. head in midline
4. chin down (can't swallow well with head back)
5. hips flexed and set back into chair
6. knees flexed

Keep in mind, though, that this is a general positioning rule and you or your therapists might

want to vary it for specific reasons.

Another general rule in feeding is to position yourself behind the child for more normal hand and arm motion. There are exceptions to this, however, because some of our children have extension patterns and throw their heads back—it can make it worse if they are trying to look at you in back of them.

Also you have to be careful when working with a child with an extension pattern not to push the occiput to get the head forward. This sets off an extension reaction.

Tongue movement is important for chewing. The tongue has to move the food around inside the mouth and help prepare it for swallowing. To facilitate the movement, you can put peanut butter or thick chocolate sauce inside the mouth on the side and have the child lick it off. You can use a camel hair brush and quickly swipe inside the mouth—the tongue will automatically go over to where you swiped. If you have a tongue protruder, a touch of ice will automatically bring the tongue back in. If you have the opposite and want the tongue to come out with increased mobility, you can take peanut butter or something similar and put it on the outside of the mouth.

If you have a drooler or a child with a continually open mouth and want to get mouth closure a quick stretch down will often help. It seems opposite of what you would need to do, but it sets off a reaction to automatically close the mouth.

Many adoptive eating utensils are available such as plate guards, built up handle spoons, etc. These are primarily available from these two catalogs.

1. Be O.K. Self-Help Aids
2. Cleo Living Aids

One of the major considerations in selecting and utilizing such aids is weighing the increased skills gained against the dependence on an object.

Dressing is another area where occupational therapists specially may be helpful.

Clothing fasteners are avoided by a lot of people with our severely involved children. I don't think they should be avoided - but dealt with when the child is developmentally ready, i.e., if he doesn't have neat pincer grasp, he won't be able to zipper. You can do things like adapt zippers with large safety pins - making it easier for pulling up and down. You can put loops in the back of the clothing articles to help identify toes from heels—something that can be hard to identify tactilly. The prehension pattern reprint may help you visualize the development of hand skills.

"Learning Steps" which is available from the Southwestern Region Deaf-Blind Center is also an excellent resource on this area.

We have already talked about cerebral palsy children. The therapist will often recommend or construct special equipment for the severly involved child especially if cerebral palsy is one of his problems. This book—"Functional Aids for the Multiply Handicapped" by Ronbinault is an excellent resource. Specific items would be such things as the:

1. Triangle chair or corner chair which is used for the child who extends or thrusts backward since it gets the shoulders forward.
2. Bean-Bag chair which is useful for the child who needs almost complete control. Chair can be molded to the child.
3. And, the prone board, which is excellent for weight bearing and getting shoulders flexed, and head and arms in useful position foractivities.

Another large area of treatment that therapists are involved in is the area of developing sensory integration abilities. This treatment approach is used primarily by O.T.'s and developed from the work of such people as Jean Ayres and Margaret Rood. The reprint gives a brief overview. Primarily, the treatment approach works on integrating the vestibular, proprioceptive, tactile and kinesthetic systems. You can easily see how important this would be with severly involved and deaf-blind children. The systems are defined well in the booklet, but briefly the vestibular system provides unconscious information from the inner ear about movement and position in space. The proprioceptive system provides unconscious information from muscles and joints, and the kinesthetic system combines information from eyes, muscles, joints and the vestibular system to form conscious awareness of one's body in space.

Techniques are used such as spinning in hammocks for vestibular stimulation—(this is a very powerful stimulus and should only be done by a trained therapist), moving on scooter boards, movement through space, and on equipment such as the sit and spin and trampoline.

An excellent resource in this area is the book *Sensorimotor Integration for Developmentally Disabled Children*, by Montgomery and Richter.

Task Analysis and Prevocational Considerations for the Deaf-Blind/ Severely-Profoundly Handicapped

Dennis Stoddard
National Children's Center
Washington D.C.
Ann Stoddard
Mountain Plains Regional Center
Denver, Colorado

INTRODUCTION AND OVERVIEW

The Nebraska Conference on the Education and Training of the Deaf-Blind/Severely-Profoundly Handicapped here at Cozad, Nebraska, is reflective of a new focus in our society on the necessity and value of developing effective instructional programming for individuals who find it most difficult to learn. A survey of the literature, even through the mid 70's, reveals very little useful published information in the area of prevocational programming for the severely handicapped deaf-blind individual. (Stoddard and Glazer, 1976).

In our workshop today our major objective is to share with you information about an instructional approach that we and many others have found to be very effective in training deaf-blind/severelyprofoundly handicapped individuals. The approach I am referring to is the Marc Gold "Try Another Way" Task Analysis system of instruction.

During our first hour we will see the film "Try Another Way" and then cover the philosophy, basic planning structure and training rules of the system. These three areas are covered in the project SKILLS Task Analysis Training Manual (Gibson and Stoddard, 1978). Project SKILLS is a vocational program of the National Children's Center in Washington, D. C. that has been applying the "Try Another Way" system over the last four years. Another application of the "Try Another Way" technology for severely handicapped deaf-blind students is reported in the monograph titled "Model for Deaf-Blind Prevocational Training Project" (Stoddard, Lodi and Fitzgerald, 1976).

In a second hour of the workshop each participant will have an opportunity to apply the technology through a hands-on role-play training procedure. Participants will prepare a content analysis of a task and then teach the task to a fellow "deaf-blind" (blind folded) participant. Roles then will be reversed so that participants have an opportunity to experience both the trainer and learner roles following the "Try Another Way" approach to training.

PHILOSOPHICAL ORIENTATION

The TAW ("Try Another Way") Task Analysis approach to training supports the conviction that severely handicapped deaf-blind individuals should be considered as basically competent and productive. These individuals can learn relevant vocational and other skills and can and should become part of society's viable community. We have learned that if an individual cannot perform a task it is not because he cannot learn it. It is because he has not been taught or trained properly. i.e., learning is mainly a function of available instructional technology, not the learner's so called "capacity to learn."

Due to the efforts of individuals such as Marc Gold, many professionals are beginning to realize they should be doing more and better training rather than more extensive testing. Testing of the severely retarded deaf-blind individual generally reveals and emphasizes what they have not been trained to do.

The TAW system focuses on the power of the trainer, not the weaknesses of the trainee. The trainer and trainee together "try another way" until the task is learned. We have acquired a deep respect for those individuals like the deaf-blind severely-profoundly handicapped who find it most difficult to learn. They are complex human beings who require competent trainers. With a competent trainer, developmentally disabled individuals work hard to learn and can become contributing members of our society. As we and others using Gold's methods learn more about how to teach complex skills to developmentally disabled individuals it is hoped that this respect and methodology will expand to other areas of special education and to the whole of society as well.

This expansion of methodology and attitude toward the learner to other special education

populations, particularly severely handicapped developmentally disabled prevocational aged persons, is the topic of this paper. The authors will apply the TAW philosophy and methodology to programming for these persons.

The emphasis in most programs serving deaf-blind severely-profoundly developmentally disabled individuals is on the development of self-help skills such as eating, dressing, pre-work training, motor and language development. Although the objectives for these individuals are very different from the objectives of a vocational program the methodology of the TAW approach and rules for training can be applied to teaching the skills needed in either type of program.

In essence, our philosophy emphasizes that the TAW approach can be applied to both dressing and eating skills as well as to the assembly of an electronic printed circuit board. The purpose of this presentation, therefore, is to demonstrate how the TAW approach can be used in your program for severely handicapped/developmentally disabled individuals.

SEVEN-PHASE SEQUENCE FOR DOING, WRITING, AND REFINING TASK ANALYSES

The "Try Another Way" task analysis training approach by definition is an attempt to determine and implement "all of the activity which results in there being sufficient power for the learner to acquire the task" (Gold, 1977). The term "power", as it is used here, refers to "the amount of intervention, assistance or direction required by the trainer in order for the learner to reach criterion. Power lies in the strategies and procedures the trainer must utilize in order for the learner to acquire the task" (Gold, 1977). The major focus then is on *communication* as feedback, i.e., the conveying of discreet pieces of information *before, during* and/or *after* an event or response that lets the learner know *what you want them to do* and whether or not he is achieving it (Gold, 1977).

"The decision to teach or not to teach any task to the severely/profoundly handicapped must be based on whether or not that task can be analyzed into teachable components rather than on some general feeling about the difficulty of the task" (Gold, 1976).

The Seven-Phase Sequence for developing a complete task analysis provides a structure and procedure for analyzing tasks into teachable components.

A task analysis contains three parts: first a description of how the task is to be done, or the *method;* second a description of the exact *content* or steps the learner or trainee must follow to complete a given task; third a series of statements indicating all of the instructor's activity resulting in there being sufficient "power" or effectiveness in the instructional *process* for the learner to acquire the tasks.

The seven-phase sequence for doing a complete task analysis is outlined by Gold as follows:

Phase 1. Decide on method.

Phase 2. Do a Content Task Analysis.

Phase 3. Do a Process Task Analysis.

Phase 4. Begin Training.
When a decision has been made that the task analysis needs revision do one of the following at a time: if it does not work, go on to the next. There will, of course, be exceptions to this.

Phase 5. Re-do the Process Task Analysis.
Question A: Is there additional or alternative feedback that might work?
Question B: Is there a different format that might work?

Phase 6. Re-do the Content Task Analysis. If more power is needed.
Question: How can the part or parts of the task which are not being learned be subdivided into smaller, more teachable components?

Phase 7. Re-do the Method.
Question: Is there an altogether different way of doing the part or parts of the task not being learned?

(Gold, 1978)

WRITING UP YOUR TASK ANALYSIS

In Project SKILLS there are two types of T.A. (Task Analysis) write-Ups: A "Short T.A. WriteUp" and a "Complete T.A. Write-Up". A "Short T.A. Write-Up" is comprised of the name of the task, a "Content Task Analysis" (description of each step of the task) and the training criterion. Always do a short T.A. write-up first. Then, after you have had a chance to try it out, write up your complete Task Analysis.

The following outline goes into the seven-phase sequence in detail and provides a guideline for doing a complete T.A. write-up. Follow these guidelines and you will produce Task Analyses that can be used by other trainers. Many trainers, however, have found that after they have written several complete task analyses and have a *good* working knowledge of the Seven Phase Sequence and the Training Instructions, "Short T.A. WriteUps," which are less time consuming to

prepare, are adequate for their day-to-day training needs.

GUIDELINES FOR WRITING AND REFINING TASK ANALYSIS

Note: In the following outline the words in block type are the standard headings and statements of a complete T.A. write-up as done in Project SKILLS. The words typed in script make up the instructions of what to put under the various headings.

NATIONAL CHILDREN'S CENTER, INC.
Project SKILLS
Acquisition Training
TASK ANALYSIS FOR (INSERT NAME OF TASK)

Composite Learner

Describe the population the Task Analysis is written for. Specify any entry skills necessary prior to training on the task.

Task Product

Describe the product that will be produced by completion of the task being analyzed. For example, in Project SKILLS it might be a printed circuit board with a varied number of dual axial lead electronic components correctly inserted into specified holes. If the product is a skill rather than an object, this item can be deleted since the skill will be described under Section I "Task Method":

I. Task Method.
   There is often more than one way or method of performing a task. For example, a dual axial lead component such as a resistor can be bent with a pair of pliers or with a parts bender (slotted forming block). When writing the method, start with the phrase,"The trainee will be able to..."Think in one or two sentences describe the task and briefly explain *how the task is to be performed* (not how to *teach* the task.)

II. Content of Task Steps
   The "Content of Task Steps" or "Content Analysis' is similar to the "Method" except it provides a more detailed picture of the task. Here the *exact steps* the learner must follow to complete the task are described.
   A. The steps for (insert name of task are as follows:
      Briefly describe each *step* of the task. Number the steps 1 through ..... When completed this will be a step-by-step sequence indicating everything the learner must do to complete the task. To simplify the design of the data sheet decide on an identifying work (which may also be used as a verbal cue) for each step and indicate them in your description.
      EXAMPLE:
      "PUT-IN" - The learner switches the component to his right hand and inserts the leads of the component into the proper holes in the assembly board. The learner then presses the component flush against the board.
   B. Training Set-Up:
      Describe the instructor's preparation for training, e.g., where material equipment and the trainer are positioned. Remember to state that the set-up role of the trainer should be faded as quickly as possible with the learner assuming this function himself.
   C. Training Plan:
      Describe the order of the presentation of the steps. The following formats can be used.
      1. Total Task Presentation: The trainee completes all of the steps each time the task is presented. Errors are corrected as they occur. The training format generally found most useful for tasks taught in Project SKILLS is Total Task Presentation.
      2. Backward Chaining: Here the last step in the chain is taught first until it is mastered, then the next step to the last step, etc., until the learner has mastered all of the steps. Backward chaining can be done in two ways. At each trial the trainer can work on only the step the learner is trying to master or at each trial the trainer can first go through all of the steps leading up to the step the learner is working on.
      3. Forward Chaining: Teach the first step until it is mastered, then the second, etc., until all the steps are mastered.
      4. Organized Exposure with Feedback: "This format is used for multiple pieces of learning which are not in sequence, for example, social learning. Create an immediate artificial environment where criterion performance is obtained from the start, then fade the environment to the original, (Gold, 1977a). Training on-task behavior can often be accomplished following this format. When using this format, however, a content analysis amounts to analyzing the different *environments* rather than the different *steps* of the tasks. To *redo* the content analysis see if there are other intermediate

environments which need to be added to maintain performance. Then eventually fade to an environment where the behaviors occur naturally.

5. Mixed: When you have a long chain of behaviors or tasks, take each component and select the particular training process which fits each portion of the total task.

If the chain of behaviors is short, total task presentation is generally the preferred format. If it is long, select a mixed format. In most electronic assembly work there are many ways the task can be subdivided and assigned to different learners. For example, if a printed circuit board assembly contains forty-eight components, divide it into three sixteen component tasks each using the total task format.

If the time per session is short and the task is long, then forward or backward chaining is preferred over a total task format. A chaining procedure is also preferrable if a learner gets frustrated easily.

The training Plan should also indicate if the task should be divided into different levels of difficulty for presentation to the learner. Describe in adequate detail possible variations of the task. For example, forming color banded resistors is easier then forming numbered resistors even though both kinds of resistors are formed using the same steps. The leads of numbered resistors must be formed so they face upward when inserted in the p.c. board. Consequently, color banded resistors are presented for training first.

D. Initial Demonstration:

The following statement should be included in each complete task analysis write-up. Demonstrate the task at the beginning of the first training session. Also demonstrate correction procedures at this time by committing an error and then verbally prompting with, "Try Another Way" or other appropriate cue(s).

Any instructions specific to the task should be given here in addition.

E. Training Sequence:

Instructor's Actions	Trainee's Actions
First describe any instructional cues or feedback the trainer uses to communicate to the trainee what he wants him to do for each step.	Elaborate on the steps the learner follows in performing the task correctly. Describe the steps clearly and in enough detail so a new trainer could perform the task.
Then, for each step, give examples of specific assists used to help the trainee correct an error. Refer to the hierarchy of instructional assists (verbal, gestural, physical) described in detail in the General Training Instructions. Note the importance of fading. Give examples of verbal phrases used to cue a step. The numbering of each step in the Training Sequence (both instructor's and trainee's actions) should coincide with the numbering given in the "Content of Task Steps."	

F. Data Collection

The following statement is used for the tasks taught in the SKILLS program and should apply to most write-ups.

Note: The Acquisition data Sheet is used to record training progress. A sample copy of this data sheet is included in Chapter Four of the SKILLS training manual. Write a word or short phrase, to identify each step, on the lines provided on the left side of the form. Show the first step on the bottom line and so on corresponding to the numbers given on the form.

Begin timing on the first step. Do not time the set-up. Place a diagonal slash (/) through the number of each step completed independently. No mark is made on the sheet for a step requiring instructional assistance. After each trial place a circle around the number of steps completed correctly in the column for that trial. Make a progress graph showing the number of correct steps per trial by connecting the circled numbers.

G. Criterion

There are two criteria that the trainer should be concerned with. Criterion I is the arbitrary point at which the instructor assumes learning has occurred. The Criterion I for SKILLS' tasks is measured as the completion of a certain number of consecutively correct trials without instructional assistance. Criterion II, (which is usually not specified in a task analysis write-up) indicates how well a worker needs to perform on actual production work and reflects the adequacy of Criterion I.

Note: Sections IV through VII are not part of the task analysis write up but are phases of the Task Analysis refining process. The Training Guidelines covered in the next secuion should be reviewed before attempting to refine task analyses.

IV. Train

After writing a task analysis, the instructor should proceed with training. Training serves as the testing ground for a task analysis. After training a number of different workers, the instructor will almost always need to rewrite or revise the task analysis in light of what has been learned. Even after a task analysis has been successfully used in training a number of learners, a trainer will sometimes find a trainee who is not learning the task following the usual process. The instructor should not conclude the trainee cannot learn the task. Rather, he should change the task analysis to meet the trainee's needs. For example, a different kind of prompting may have been found helpful or perhaps a step needs to be added or deleted. Occasionally, a new method for completing the task is needed. Sections V, VI, and VII outline this process.

V. Redo the Instructional Process

The instructor begins by redoing the Instructional *Process* (see Section III). What kinds of feedback or prompting could be used to help the trainee? Perhaps a different format is needed (see Section III.C.)

VI. Redo the Content of Task Steps

If redoing the Instructional Process is not sufficient, the instructor should examine the *Content* of Task Steps (see Section II). Can the steps giving the trainee difficulty be subdivided into smaller, more teachable units? Would additional discrimination assisting steps be helpful? Remember when the *content* is revised, the *process* must also be revised.

VII. Redo the Method

If redoing the *Content of Task Steps* is unsuccessful then redo the *Method* (see Section II). Is there another way of doing this task? Can a jig or a special tool be used? Can the method be changed so different discriminations or different motor movements are involved? When the *method* is revised both the *content* and the *process* will need to be revised.

When revising the *process* or *content* of a task analysis to meet the needs of an individual trainee or a small group of trainees within the general population, mention these alternative procedures or optional steps, etc., in the "Instructor's Actions" column of the task analysis (see Section III.E.).

As a final note, remember to follow the admonition to "Try another way" in helping the learner acquire the task. Train conscientiously, be willing to make needed changes, incorporate the Training Guidelines presented in the next chapter and you will find your Task Analysis becoming increasingly more powerful over time.

SOME TRAINING GUIDELINES INTRODUCTION

The respect we have for the learner is reflected in the techniques we use in Project SKILLS. Basic to the overall approach is a dual expectation. We expect ourselves, as trainers, to "try another way" when *we* do not first succeed, and we teach our learners to "try another way" when *their* first attempts are incorrect. We believe that learners labeled developmentally disabled or deaf-blind/severely-profoundly retarded can acquire independent mastery of the functions and skills they need to live productive lives.

The guidelines given in this section are some of the tools and techniques to use while involved in training. A listing of all the guidelines are listed and discussed in the SKILLS Training Manual. All of the guidelines have been tested and refined in training and production settings in Project SKILLS.

The rules and examples we will cover are intended to guide the trainer through the moment-to-moment decisions he must make

during training. They are not rigid laws to limit and control the training and they do not cover every kind of situation a trainer will encounter. Even with these rules the trainer must still depend on his own creativity and good judgement.

For the trainer who has prepared a task analysis and is interested in incorporating these techniques into his training, we suggest a threepart plan: First, study and become familiar with the rules; second, role play training situations with other trainers, while consciously trying to incorporate the rules. Third, train a learner. Check your own performance and whenever possible have someone else who knows the rules observe you and give you feedback. Then do more trianing. Learning the rules is sometimes difficult and often involves breaking old habits. However, with practice, planning, and time they will become an automatic part of your training style and will increase your power as a trainer.

INSTRUCTIONAL ASSISTANCE

Instructional assistance or feedback lets the learner know what is expected of him and if he is achieving it. (Gold, 1977). Give assistance when a trainee decides to incorrectly complete a step. The following rules have proved useful in determining how, when, and with what type of assistance an instructor should intervene to help a trainee learn how to correctly complete a step.

1. Rule for Timing of Assists

   Assist the trainee at the moment he decides to make an incorrect response, but before he has acted on the decision. (Gold, 1977).

   Timing is a critical factor in the successful use of training assists. Giving the right assist at the wrong time decreases its effectiveness. Ideally, assists should not be made while the trainee is still looking for the correct response nor after he has made a mistake. Repeatedly making the correct response with less and less assistance means that the right way to complete a step will become a "habit" over time. In order to assist at the moment of decision, the instructor must observe the learner closely without having his attention distracted. With some tasks it is not feasible to use the "moment of decision" guidelines, because the steps happen too quickly, or because errors cannot be observed until they are made. Hand soldering and final cutting are two examples of tasks within electronics where it is not always possible to intervene at the moment of decision. The trainer can sometimes assist the correction of the error after it has happened. This, too, is not always possible. A lead that is cut too short cannot be "corrected", beginning solderers cannot be expected to rework their mistakes. Usually, then, when an error is completed, the instructor should demonstrate again, move in sooner with the proper assistance the next time the step is attempted, or take the learner through the task several times before relying upon less powerful assists.

2. Rule of Diminishing Feedback

   "Each time you correct an error which has been made before, provide enough information to correct the error but less information than the time before" (Gold, 1977).

   The instructor must always be conscious of fading out the assistance he gives the trainee. Instructors of the deaf-blind should especially avoid giving the trainee too much information; as this keeps the trainee from independent learning and teaches him to be dependent on the instructor. On the other hand, giving too little information or reducing assistance too abruptly assures the trainee will fail to correctly complete the step.

   "If you have a prompt that works, do not use it again" (Gold, 1977). Progress is not made when a trainee can only complete a step with a certain prompt. The same prompt or assist should be used no more than a couple of times, otherwise the trainee can become dependent on it. Prompts should be faded out or the type of prompt varied to prevent this from happening. If you are having difficulty in subtly changing and fading a prompt, the following section describing the Hierarchy of Instructional Assists will be helpful.

3. Rule of Three Assists

   Following the hierarchy of assists, increase power as needed, within a given step while fading out power over trials. After a learner has made three unsuccessful attempts to perform a step correctly, the trainer should intervene with enough assistance to enable the learner to correctly complete the step.

   For example, when a learner first begins to make an error on a component insertion step, the trainer can intervene with the phrase, "Try another hole" (verbal assist). This gives the learner the opportunity to check himself and then go ahead and correctly complete the step by himself.

If, however, he again makes an incorrect attempt, the instructor can intervene with more power such as pointing (a gestural assist toward the correct hole. Finally, if necessary, the instructor might point directly (more powerful gestural assist) to the hole which he "knows" will show the trainee what is to be done. The assumption here is that after three incorrect attempts, frustration will be avoided and more will be learned from correctly completing the step with assistance than will be learned from further exploratory behavior. In giving these final assists, the instructor must still be conscious of the fading out process as described in the Rule of Diminishing Feedback. This balance of *fading out power over trials and increasing power, as needed*, within steps maximizes the learner's opportunity for independent learning and also allows for the trainer's efficient use of his time and resources.

4. Hierarchy of Instructional Assists

The hierarchy of instructional assists ranks the different types of assists according to their instructional power. Physical assists are more powerful than gestural assists and gestural assists are more powerful than verbal assists. The hierarchy is used as a guideline for choosing, adding, and fading out assists according to the amount of power they provide the instructor in training the learner.

Power is defined as "the amount of intervention, assistance, or direction required by the trainer in order for the learner to reach criterion" (Gold, 1977). Some learners are more capable and will need less power than others. All learners will need less power as they progress. Therefore, the trainer should choose from the hierarchy of assists those assists which will provide sufficient power to bring a particular learner to criterion.

As indicated in Figure 1, the amount of power decreases *across* the different types of assists, from physical to gestural to verbal. For example, fade from manipulating the learner's fingers, to pointing directly to where the learner's fingers need to go, to giving the learner a one-word verbal assist such as, "insert". Power can also be reduced gradually *within* each type of assist. For example, within the category of physical assists, taking a trainee's hand and manipulating his fingers around an object gives more information and assistance than gently pushing his hand toward the object. There is overlap in the strength of the different types of assists. For example, pushing a trainees hand to the correct tool gives him about as much information as pointing to within an inch or so of that tool.

5. Rule for Using Demonstrations

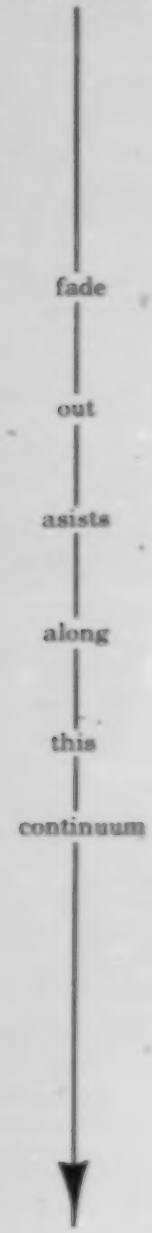
When beginning training on a new task, start with a demonstration of the task.

Though demonstrations are not part of the Hierarchy of Instructional Assists, they are an important tool available to the trainer. Besides being useful in introducing a new task to a learner, demonstrations can also help during training; for example, to show the learner exactly how to hold a tool, bend a wire, hold a brush, or move his hands. When manipulating an item that is too small for using a physical assist, demonstrate instead. When it is difficult to prevent a learner from making a small movement too quickly and thereby making an error, demonstrate before the step in question. For example, when cutting the leads of components, there is a tendency for the learner to cut the leads before the cutters have been correctly positioned. (See also Rule 7. Training of Assists).

Since demonstrations require careful observation by the learner, they are not the most powerful tools. They can be used successfully on simple steps or tasks. Demonstrations generally offer the learner more power than verbal assists but less power than physical assists.

Demonstrations for blind individuals are divided into three steps. First, allow the learner to explore, handle and manipulate the relevant objects and equipment related to the task. Second, let the learner handle and become familiar with the finished product. Third, physically manipulate the learner through each of the steps. Then, as needed, follow the rule of diminishing feedback. Repeat this third demonstration step several times if the learner has difficulty learning.

Hierarchy of Instructional Assists



Physical Assists

1. The instructor moves the trainee through the step by forming his hand around the trainee's hand and *manipulating the hand and fingers.*
2. The instructor guides the trainee through the step by *grasping the trainee's hand or wrist.*
3. The instructor guides the trainee through the step by placing his hand on the trainee's elbow and *applying mild but continuous pressure.*
4. The instructor *gently taps* the trainee's hand into the correct position or toward the correct tool, etc.

Gestural Assists

1. The instructor *points directly* to the component, tool or item involved.
2. The instructor *points within an inch or so* of the component, or tool or item, etc.
3. The instructor *points in the general direction* of the component tool or item, etc.

Verbal Assists

1. The instructor gives the trainee a specific verbal instruction such as "thumb up" or "cutters".
2. The instructor verbally instructs the trainee to make another attempt at a correct response, i.e., "try another place" or "look again".

Figure 1

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Individual Education Plans

Linda Kates
Kentucky School For The Blind
Louisville, Kentucky
Jerry Hoover
Nitzinger School For The Deaf
St. Louis, Missouri

Introductory Statement

Since the introduction and implementation of Public Law 94-142, mass confusion has reigned. Although each education agency has interpreted P.L. 94-142 differently, there are general procedures common to all. We would like to review these common procedures and how they may be adapted to your particular agency.

Basically, our presentation will concentrate on two primary areas:

1. The mechanics of the IEP, including the four steps of the Child-by-Child Plan; the seven components of the Child-by-Child Plan; the levels or stages of an IEP; the types of evaluation that should be incorporated into the educational plan; writing behavioral objectives; and
2. Due Process, including the accepted means for appeal; responsibilities of local education agencies; the process of filing an appeal; administrative appeal procedures; and a delineation of parent's rights.

The Individual Education Plan and the Deaf-Blind/Severely-Profoundly Handicapped Child: Why and How?

Linda Kates

Why the IEP?

On November 29, 1975, President Gerald Ford signed into law Public Law 94-142, the Education for All Handicapped Children Act of 1975. Since that time, discussions have been generated which center on the implications of P.L. 94-142 for professionals and parents. (Abeson, 1977)

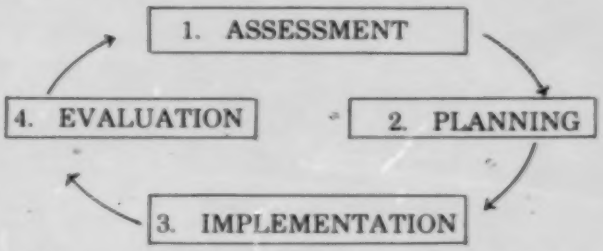
Public Law 94-142 stipulates that every handicapped child who requires special education and related services shall receive an education designed specifically to meet his unique educational needs. Furthermore, this instruction must be provided at no cost to the parents. The development of the "Individualized Education Program (Plan)" is a means of assuring that each handicapped child receives an appropriate education.

The concept of individualizing programming has been included in other federal legislation. Public Law 94-103, the 1976 Amendments to the Developmental Disabilities Act, required that Individualized Program Plans (IPP) be established to delineate services to be provided. The Individualized Rehabilitation Plan (IRP) was included in the 1974 Amendments to the Vocational Rehabilitation Act, P.L. 93-112. Through the development and use of Individualized Plans, children with special educational needs are assured of having greater opportunities for successful learning experiences. (Schrag, 1977).

IEP: The Past and Present

The concept of Individualizing Educational Programming (IEP) is not new. In the past, special educators have been involved in developing and utilizing individual education plans, but the plans were designated as "Child-by-Child Plans," "Individual Student Plans," "Individually Guided Educational Plans," "Individually Instructional Plans," or "Individual Program Plans." In medical settings, the "Patient Care Plan," which included a section on educational programming, have been developed and used.

The majority of IEPs used in the past have been based on a systems approach utilizing four basic steps:



Step 1 - ASSESSMENT consists of two components: (1) Medical and (2) Educational.

Medical Assessment is especially important for the severely handicapped or multiple handicapped child. Due to the variety and complexity of medical problems which these children exhibit, such an assessment can provide information relative to limitations which might suggest the need for alternate instructional or management strategies. It should be noted however that medical diagnosis, considered independently, does not necessarily provide

educationally useful information.

Educational Assessment provides the most useful information in terms of developing an educational plan. Ideally, it provides information on what skills the child has and does not have. Different types of educational assessments may be used: the criterion-referenced tests, norm-referenced tests, and others which are categorized as either long-term or short-term assessments. The following assessments are a few which have been used with severely handicapped individuals:

American Association on Mental Deficiency (AAMD) Adaptive Behavior Scale
Camelot Behavioral Checklist
Portage Project Checklist
Callier-Azusa Scale
The YEMR and TMR Performance Profiles
Cain-Levine Social Competence Scale
The Vineland Social Maturity Scale
Learning Accomplishment Profile
Lexington Developmental Scale
Nebraska Client Progress System
Pennsylvania Training Model
The TARC Assessment System
Student Progress Record
System FORE

Step 2 - PLANNING is where the IEP as described by P.L. 94-142 is found as an integral component. A specific definition of the components of an IEP is included within the Act:

> A written statement for each handicapped child developed in any meeting by a representative of the local educational agency or an intermediate educational unit who shall be qualified to provide, or supervise the provision of, specially designed instruction to meet the unique needs of handicapped children, the teacher, the parents or guardians of such child, and, whenever appropriate, such child, which statement shall include (A) a statement of the present levels of educational performance of such child, (B) a statement of annual goals, including short-term instructional objectives, (C) a statement of the specific educational services to be provided to such child, and the extent to which such child will be able to participate in regular educational programs, (D) the projected date for initiation and anticipated duration of such services, and appropriate objective criteria and evaluation procedures and schedules for determining, on at least an annual basis, whether instructional objectives are being achieved. (Public Law 94-142, 1975, Sec. 4, a, 19)

This written statement formulates the Total Service Plan for the handicapped child.

Step 3 - IMPLEMENTATION. The Implementation/Instructional Plan is developed based upon the Total Service Plan. The following seven components should be included in the implementation/instructional plan:

1. Long Term Goals
2. Short Term Goals (Objectives)
3. Activities, Strategies, Procedures
4. Materials
5. Other Behaviors Integrated
6. Evaluation
7. Future Strategies

Many educators have also added a section to include the dates for when the objectives are to be initiated and when they are completed.

Step 4 - EVALUATION is imperative to determine the appropriateness of the child's educational program. Two types of evaluation should be incorporated into the educational plan:

1. Formative or on-going evaluation and
2. Summative or a summary of performance to determine effectiveness of the educational plan.

The use of Pupil Progress Reports is one type of formative evaluation which many educational programs utilize. Charting the child's performance is another type of formative evalutation which could be used.

The Annual Review of the IEP, as stipulated in P.L. 94-142, would constitute a means of summative evaluation. Many educational programs develop year-end reports on each child and these also are a form of summative evaluation. By preparing such year-end reports, the program is not only documenting the child's progress, but also providing vital information to staff members who will be working with the child the next year or to another agency which might be involved in providing educational services to this child.

Levels or Stages of the IEP

An IEP can be thought of as having three levels or stages:

1. Total Service Plan
2. Implementation/Instructional Plan
3. Annual Review

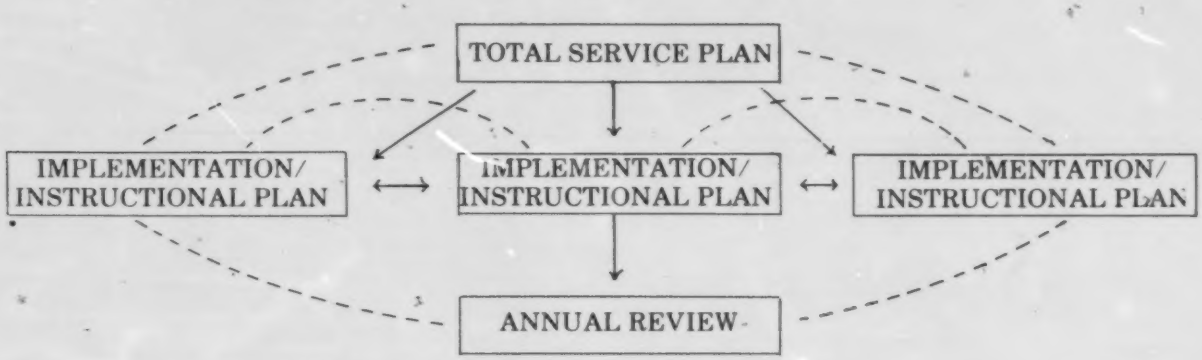
These levels or stages are designed to guide

educational planning and basically follow the systems approach used in the past. (Schrag, 1977).

IEP: Challenge for Teachers and Support Personnel

An understanding of the levels or stages of an IEP provides insight into the flow of educational planning according to P.L. 94-142. As Schrag (1977) points out, the three levels of IEPs are interdependent and closely related.

Since the local educational agency is responsible for developing the Total Service Plan,



teachers and support personnel are primarily consultants at this level. The real challenge occurs when the teachers and support personnel must write goals and behavioral/performance objectives; ascertain the appropriate activities, strategies, or procedures to achieve the objectives; and develop the means by which the objectives can be evaluated.

Many teachers have difficulty with the terms "goals" and "objectives". According to Padzensky and Gibson (1975), a goal is a broad, general statement of program intent. Conversely, an objective is a statement which is specific and measurable.

Robert F. Mager (1962) explains that a behavioral objective has at least three components:

1. The conditions under which the behavior is to occur,
2. The behavior to be observed, and
3. The criterion of acceptable performance.

For example: Using two cards with different names on them presented by the teacher, Johnny will point to his own name 8 out of 10 times.

Another way to review the components of behavioral/performance objective is to see if the objective answers the following questions:

Components	*Example*
Who? (the learner)	Johnny
What will he/she do? (the behavior)	will point to his own name
What material to be used? (descriptor)	2 cards with different name on them
Who initiates the action?	presented by the teacher
What are acceptable responses? (criterion or performance level)	8 out of 10 times

Once the teacher and/or support personnel determined the behavioral objectives, they need to identify the sequence of skills necessary to achieve the behavior. The procedure used to develop efficient skill sequences for shaping new behavior is referred to as task analysis. It is important to realize that the deaf-blind/severely-profoundly handicapped child needs small, clearly stated steps. For examples of task analysis, refer to Attachments A and B.

It is also necessary to identify prerequisite entry behaviors. As Gentry and Parks (1977) point out, if a teacher overlooks determining what entry skills are required for the child to be able to do a specific task, he/she may miss an integral behavior that will prevent the child from being successful at the task.

After the task has been analyzed, the next step is to determine the order in which the sub-tasks should be taught. The two main approaches are forward and reverse chaining. Chaining is a procedure used by many teachers of the deaf-blind/severely-profoundly handicapped. It refers to the movement from one behavior to the next in a sequence of skills. Forward chaining is

used for teaching skills which are developmental, like walking. Reverse chaining is often used in teaching self-care skills, so that a child performs the last behavior in a sequence, such as pulling the bow tight on a shoestring. In subsequent trials, the steps performed are increased until the child can start at the beginning and complete all of the steps. (Gentry and Parks, 1977).

The challenges of implementating the educational plan are overwhelming to some teachers and support personnel. Two major factors to be considered in the implementation process are (1) the time in the classroom, and with support personnel; and (2) establishing a relevant environment.

If the classroom schedule does not allow enough time for all persons involved in the educational programming of the child to perform their job, then the implementation plan will not be appropriate or effective. The deaf-blind/severely-profoundly handicapped child requires his/her own daily routine of scheduled and unscheduled time. Frequently, scheduling can determine the success or failure of the child's educational program. (Hammer, 1976)

The concept of a relevant environment is based on the setting in which the child is functioning being appropriate for his/her particular performance level and unique learning needs. Such an environment is conducive to integrating behaviors which provide optimal learning experiences for the deaf-blind/severely-profoundly handicapped child. This integration of behaviors is a direct result of structuring the environment and not because of structured activities taking place within the environment, as most educators believe.

Therefore, teachers and support personnel are charged with the enormous responsibility of not only preparing and implementing the IEPs, but also of evaluating them. This is where data collection becomes of prime importance. The format of the data collection system is not crucial, but maintaining records is paramount. It is only through a system of on-going (formative) evaluation can the child's progress be monitored; and the need for modifications, additions or other necessary changes to the child's IEP be detected.

IEP: Accountability

Some teachers and support personnel have developed high levels of anxiety as a result of perceiving the IEP as an accountability measure. They feel that if the child does not achieve the annual goals or behavioral/performance objectives specified, they will be held accountable for the lack of progress.

Let's face it, teachers of deaf-blind/severely-profoundly handicapped children could very easily become anxious about accountability, since these children progress at varying rates and many are sporatic achievers.

As Hayes and Higgins (1978) explain, P.L. 94-142 does not require any teacher, agency, or other person be held accountable. The commentary that accompanies the regulations of Public Law 94-142 provides clarification as to the extent of Section 121:

> To relieve concerns that the individual program constitutes a guarantee by the public agency and the teacher that a child will progress at a specified rate. However, this section does not relieve agencies and teachers from making good faith efforts to assist the child in achieving the objectives and goals listed in the individualized education program. Further, the section does not limit a parent's right to complain and ask for revisions of the child's procedures, if the parent feels that these efforts are not being made. (Public Law 94-142, Final Regulations, Sec. 121a.349 (Comments), 1977)

It is imperative to involve the parents or surrogate parents in the development, implementatin, and the evaluation processes of the Individual Education Plan. Recently, educators have become more aware of the need for increased parental involvment and the rights of parents, including the Due Process Procedures.

DUE PROCESS AND PARENTS RIGHTS UNDER THE IEP

Due process is the legal definition for certain principles and practices that must be respected to ensure that no citizen is denied his or her rights. Due process is a fundamental concept of American law and is guaranteed to each citizen by the fifth and fourteenth amendments to the United States Constitution. For educational purposes due process means there are procedures that must be followed if and when any change is made or proposed in a child's educational program. Parents rights are an integral component of any due process proceedings.

A due process hearing is available whenever there is a dispute between the parents and the local education agency (LEA) regarding the

identification, evaluation or placement of an exceptional child.

Each state can and does differ in its specific interpretation of the due process clause. What is to follow are general principles, procedures, and guide lines that apply across the board.

When as a parent you are not in accord with the IEP, you must notify the school district *in writing* of your disagreement. The school district will then in writing appraise you of your rights. You will receive the rights guaranteed you as interpreted by the State Department of Education.

Generally speaking, these rights are:

1. You have the right to counsel.
   (a) This may not necessarily be an attorney, but a lay advocate.
2. You can present evidence to support your position.
   (a) Obtain an independent evaluation (which may or may not be at public expense).
3. You can review and copy (at reasonable expense) all personably identifiable data pertaining to your child.
4. You can be accompanied by persons having special knowledge of exceptional children.
5. You can bring and call witnesses.
6. You will receive a complete and accurate transcript of the proceedings.
7. You can appeal the decision.

Most LEA's will also provide you with a list of where an independent evaluation can be obtained and they will also provide a listing of either free or at nominal cost legal representatives. During the due process proceedings the child will remain in his current educational placement unless the appeal is to place the child in public school. In that instance, the child will be placed in the public schools until due process proceedings are terminated.

When the hearing is covened, the parents can:

1. Compel the presence of an LEA employee who can give relevant testimony or present evidence to the placement of the child.
2. Declare the hearing open to the public.
3. Can confront, question and cross examine all witnesses.
4. All test scores will be interpreted for the parents to their (the parents) satisfaction.
5. The burden of proof as to the appropriateness of the placement rests with the educational agency.
6. Where the parents are deaf or if the primary language of the home is not English, fluent interpreters will be provided at public expense.

All of these principles and practices are in force during all levels of appeal.

A major portion of due process resides in the hierachy of appeals. This hierachy follows both the channels of communication and lines of authority in the educational agency. Usually any hearing with the first rung on the ladder is with the principal or program supervisor. This hearing while official is usually conducted informally although the aforementioned rights must be given.

The next step of the hierachy is with either the assistant superintendent or the superintendent. This hearing while still official can also be conducted informally.

It is at this next step where SEA's and LEA's begin to differ. Some states prefer a formal hearing with the board of education, while others suggest going to the State Department of Education, or having an impartial hearing officer appointed to adjudicate the differences. Still, other states require the administrative appeals go through all levels up to the State Department or Board of Education before a hearing officer is appointed.

The hearing officer cannot be an employee of any agency having contact with the child nor can he/she have a personal or professional interest in the outcome of the case. The findings of the hearing officer are binding on both the parents and the LEA, although, provisions and procedures must be given for judicial appeal.

Only after all facets of the administrative appeal system have been exhausted, should or can the parents turn to the courts. Precedent has been established and upheld by the Lori Case vs. the State of California (1973) case. Most if not all courts will refuse to hear any case until all other avenues of due process have been explored.

Most states have not had an appeal go beyond the Superintendent or School Board level, therefore few if any precedents have been established; but the machinery for appeals is available and at your disposal. Usually disputes will be resolved long before the appeal process reaches the impartial hearing officer stage. Maybe yours will be the case that establishes a legal precedent.

Other incidents that trigger a due process hearing are:

1. Denial of access to records
   (a) If this occurs parents should file a written complaint detailing the incident to "The Family Education Rights and

Privacy Complaint Office - United States Department of Health, Education, and Welfare."

2. Refusal to provide transportation
3. Denial of placement because of Architectural barriers.
   (a) File a written complaint with the Office of Civil Rights at HEW or the Bureau of Education for the Handicapped U.S. Office of Education HEW

This is a violation of Section 504 of the Vocational Rehabilitation Act of 1973 and any agency receiving federal funds i.e., public schools must comply with these statutes or face the loss of the federal monies.

School officials are only human and usually have the best interest of children as their foremost concern. But by being human, they also have the same frailty and shortcomings that all of us are capable of having. When dealing with school officials, communicate in writing whenever possible. If you do communicate either in person or by telephone, promptly follow-up the conversation with a letter stating your understanding of the situation, the issues discussed, and commitments made by either party during the conversation. Send carbon copies of all of your correspondence to the assistant superintendent, the superintendent, the president or chairperson of the Board of Education and the State Department of Education, Division of Special Education. Keep a copy for yourself of all correspondence.

Whenever a parent requests any LEA to take a specific action regarding their child's education, specify a reasonable time frame usually twenty school days at the end of which you expect a response either denying or confirming your request or a date for further discussion.

Do not assume the teacher or principal has the responsibility or authority to make the changes you request. Find out who has this responsibility and authority and communicate with this person directly.

Schools have bureaucracies. Learn to recognize bureaucratical excuses for inaction. Be pleasant but firm and assertive, but not aggressive, hostile or offensive.

Make, maintain, and make use of parent groups, advocate groups, and other interested agencies whenever possible. There is strength in numbers.

If your requests are denied, resisted, or delayed beyond a reasonable time, request in writing a speedy due process hearing.

As stated before, most differences are not irreconcilable and can be reached before the formal processes are enacted. But it is the right of all parents to use the due process right.

Attachment A
BRUSHING TEETH

1. Remove the cap from the tube and place it to the side and back of sink so it will not roll into the basin. Lay toothpaste on sink.
2. Wet toothbrush in cold water.
3. Place brush in left hand, holding bristles upward between forefinger and thumb with the bristles slightly lower than the tip of the fingers. The fingers should extend outward away from the hand, parallel with finger and thumb.
4. Take the toothpaste in the right hand and hold the nozzle on the bristles, tilt the tube at a slight angle.
5. Using the thumb and forefinger as guides and starting with the bristles at the end of the brush gently pulling tube toward the handle until the opposite end of the bristles is reached. Put toothbrush (bristle end) in mouth and put cap back on the toothpaste tube and return it to its proper place.
6. Place the toothbrush in the dominant hand.
7. Clean the inside and outside surfaces of teeth by brushing in up and down motions from gums to the grinding surfaces of each tooth.
8. Clean the grinding surface; brush back, forward, and sideways, forcing the bristles into the crevices and grooves. (gently brush gums and tongue, include all areas of mouth).
9. To get rid of paste from the mouth, place the hands on the side of the basin as a guide, and lean over the sink to make sure the basin is not missed.
10. Rinse the brush thoroughly.
11. Rinse out the basin of the sink.

Name of Child _____
Date _____
Name of Instructor _____
Location of Activity _____
Comments _____
_____
_____

Attachment B
WASH A DISH

1. Place dish-drainer on left side of sink.
2. Prepare dishes for washing on right side of sink (reverse for left handed students).
   a. Scrape and rinse dishes that are especially soiled.
   b. Stack dishes by putting similar things together. Place the glasses next to the sink since they should be washed first.
   Place silverware next and then the china. Pots and pans should be last.
3. Fill wash basin and rinse basin half full.
4. Place soap in wash basin.
5. Wash glasses inside and out, rinse, place in drainer.
6. Wash dishes by holding dish with thumb in front, the fingers in back with left hand.
7. Hold sponge or cloth in your right hand.
8. Hold the dish down in the water.
9. Wash the front of the dish using a circular motion, then the back, using the same motion.
10. Place the dish in the rinse water. (Lay it gently in the bottom of the rinse basin.
11. Rinse the dish and then place it in the drainer.

As pieces are added to the exercise, show the child how to wash the glass, cups, etc. in a circular motion. When introducing silver, use the spoon first, then the knife, keeping the sharp edge away from your hand when wiping it, and the fork last.

Name of Child _____
Date _____
Name of Instructor _____
Location of Activity _____
Items washed _____
Comments _____
_____
_____

APPENDIX I
TYPES OF FORMS
INDIVIDUAL EDUCATION PROGRAM: TOTAL SERVICE PLAN

Child's Name _____
School _____
Date of Program Entry _____
Prioritized Annual Goals (Terminal Behavior)

_____
_____
_____

Summary Statement of
Present Levels of Educational Performance
(Strengths and Weaknesses)

_____
_____
_____
_____
_____
_____

Short Term
Instructional Objectives
Specific Educational
and/or Support Services
Person (s)
Responsible
%
of Time
Beginning and
Ending Date
Review
Date
Description and % of Time
in Regular Classroom
Placement Decision

Committee Members Present _____
_____
_____
_____
_____

Dates of Meeting _____
_____
_____

Figure 9: TOTAL SERVICE PLAN

Committee Recommendations for
Specific Procedures/Techniques, Materials, Etc. (include information about learning style.)
Established Objective Criteria and
Evaluation Procedures for each Annual Goal Statement

PATIENT CARE PLAN

Interdisciplinary

Patient Name_____
Physician_____
Record No._____
Admission Date: _____
Age: _____
Sex: _____
DIAGNOSIS:
DIAGNOSIS:
Prognosis for each diagnosis specify (Good 1), (Poor 2), (Guarded 3) _____
Attending Physicians Care Plan: _____

Nursing Care Plan

Physical Therapy Care Plan:

Speech Therapy Care Plan:

Occupational Therapy Care Plan:

Dental Care Plan:

Optometrist:

Psychological Care Plan:

Educational Care Plan:

Activities Care Plan:

Social Care Plan

Consultants Care Plan Physician ( ) Others ( ) Specify

Interdisciplinary Care Plan:

Short Term:
Long Term:

(Include discharge potential) Good - 1, Poor - 2, Guarded - 3
Discharge to SCU
Discharge to Home
Discharge - ICU
Discharge - Other (specify)

Authorization for implementation of
Patient Care Plan

TARGET SPECIFIC PLAN

(limited to one target behavior only)

Name_____

Number _____

ELC _____

Date of Implementation: _____

Present Behavior Strengths

Target Behaviors

Target Behavior Goals

Deadline Date

Methods to be used & Person Responsible

Signed _____

INDIVIDUAL PROGRAM PLAN

Goals
Strategy Procedures
Materials
Evaluation

INDIVIDUAL INSTRUCTIONAL PLAN

Area of Instruction _____
Birthdate _____
Name _____
Teacher _____
Date Initiated: _____
Date Completed: _____

BEHAVIORAL OBSERVATION:

Instructional Goals: To instruct the child in...

1. _____
2. _____
3. _____
3. _____

Behavioral Objectives for Child:

A. The child will be able to: _____
B. The child will be able to: _____
C. The child will be able to: _____

METHODS AND MATERIALS

1. _____
_____
2. _____
_____
3. _____
_____

EVALUATION OF METHODS AND MATERIALS

_____
_____

EVALUATION OF PROGRESS

Achieved
Made Progress
Dropped
Modified
Goal A
Goal B
Goal C

Educational Plan

Name of Child _____
Date Submitted _____
Date of Birth _____
Age _____
Yrs. _____
Mos. _____
Attendance _____
Teacher _____
Lower School Level

Self-Help Skills

Feeding, Eating, And Drinking (BCP 3,4,31)
Observation:
Plan: _____
will be able to: 1. _____
2. _____
3. _____

Toileting and Grooming (BCP 5,6)
Observation:
Plan: _____
will be able to: 1. _____
2. _____
3. _____

Dressing and Undressing (BCP 7,8)
Observation: Plan: _____
will be able to: 1. _____
2. _____
3. _____

Nasal and Oral Hygiene (BCP 9, 10)
Observation: Plan: _____
will be able to: 1. _____
2. _____
3. _____

Perceptual and Motor Skills

Sensory Perception (BCP 12)
Plan _____
will be able to: 1. _____
2. _____
3. _____

Auditory Perception (BCP 13)
Observation: Plan: _____
will be able to: 1. _____
2. _____
3. _____

Visual Motor (BCP 14, 15) Fine Motor
Observation: Plan: _____
will be able to : 1. _____
2. _____
3. _____

Gross Motor (BCP 16, 17, 54, 56)
Observation: Plan: _____
will be able to: 1. _____
2. _____
3. _____

Self-Indentification and CO-Active Movement (BCP ll)
Observation: Plan: _____
will be able to: 1. _____
2. _____
3. _____

ADDITIONAL COMMENTS:

Child-by-Child Planning Cards

Front
Student's Name _____
Date _____
Subject _____
Student goals:
Activities
Mon.
Tue.
Wed.
Thurs.
Fri.
Back
Comments:

Alternative Activities:

Actual size of cards - 5" x 8"

Code used on the cards: More than one from each column can be used. 1 - Completed task - Indepe.ident 2 - Completed task - Assisted 3 - Task not completed 4 - Task too difficult a - Appropriate behavior b - Did not attend to task c - Lack of cooperation d - Tantrum

APPENDIX II
1. IEP: Pre-Test
2. New Publications & Resources
IEP Pre-Test

1. What is the new law affecting special education and *all* handicapped children?
   a. 93-112 b. 91-230 c. 94-142 d. 94-103 2. What are the four steps of the Child-by Child Plan?
   a. Assessment b. Materials c. Planning d. Implementation e. Evaluation
   f. Activities, Strategies, Procedures
3. What are the levels or stages of the IEP?
   a. Total Service Plan
   b. Implementation/Instructional Plan
   c. Task Analysis
   d. Annual Review
   e. Environment
4. What are the seven components of a Child-by-Child Plan?
   a. Environment
   b. Long Term Goals
   c. Assessment
   d. Short Term Goals (Objectives)
   e. Activities, Strategies, Procedures
   f. Task Analysis
   g. Materials
   h. Other Behaviors Integrated
   i. Evaluation
   j. Parental Expectations
   k. Future Strategies
5. According to Robert F. Mager, what are the three criteria for a behavioral objective?
   a. Conditions under which the behavior is to occur
   b. Statement of the behavior
   c. Implementor of the training
   d. Criterion of acceptable performance
   e. Developmental scales used
6. What is the major basis for Individual Education Planning (Programming)?
   a. Parents goals for their child
   b. Assessment data
   c. Teaching strategies
   d. The child and his needs
   e. b and c
7. Is the format of the educational plan as important as the content?
   a. Yes
   b. No
8. What are two types of evaluation which should be incorporated into the educational plan?
   a. Formative
   b. Consultative
   c. Behavioral
   d. Summative
9. Give definitions for the two types of evaluation.
   a.
   b.
10. Who should be involved in developing the IEP?
   a. Parents
   b. Teachers
   c. Aides
   d. Physical Therapist
   e. Occupational Therapist
   f. Speech Therapist
   g. Mobility Specialist
   h. All of the above

Congratulations you have finished!

NEW PUBLICATIONS & RESOURCES

Developing Effective Individualized Education Programs for Severely Handicapped Children and Youth, edited by Norris Haring, is available for $10.95 plus $.50 postage and handling from:

Special Press
Dept. N
724 S. Roosevelt Ave.
Columbus, OH 43209

Who serves the Handicapped Preschool Child? is a recent report prepared by the Minnesota State Council for the Handicapped. It is available for $2 per copy from:

Minnesota State Council for the Handicapped
Metro Square Suite 218
Seventh & Roberts Streets
St. Paul, MN 55101

Modifying Classroom Behavior: A Manual of Procedures for Classroom Teachers by Nancy K. Buckley and Hill M. Walker is available for $3.60 from:

Research Press
2612 N. Matis Ave.
Champaign, IL 61820

Eastmont Training Center Checklist has been compiled by the professional staff of Eastmont for severely to moderately handicapped students ages 4-18. Useful as a curriculum guide and assessment tool, it may be obtained for $2.50 per copy from:

Pamela Boespflug
Box 1383
Glendive, MT 59330

Individualized Learning Program for the Profoundly Retarded by M. Susan DeVore combines a series of lesson plans with a method of collecting data and recording progress attained by each child. Suggestions data and recording progress attained by each child. Suggestions
for developing additional learning programs based on benavior modification principles are included. It may be obtained for $11 per copy from:

Charles C. Thomas
301 327 East Lawrence Ave.
Springfield, IL 62717

Due Process in Special Education: A Legal Analysis traces evolution of due process in special education and focuses on state progress in implementing due process requirements. It is available at $5 a copy from:

Research Institute for Educational Problems, Inc.
29 Ware Street
Cambridge, MA 02138

Individualized Education Programs for Handicapped Children, a media package containing three filmstrips and three tapes, was designed to provide practical assistance in understanding and developing individualized education programs (IEP 's) for handicapped children who require special education and related services. The IEP is depicted as the management tool linking the child to appropriate special education and related services as required by the Education for All Handicapped Children Act of 1975, Public Law 94-142. Also included is *A Primer on Individualized Education Programs for Handicapped Children*. It is available for $65.00 from:

The Foundation for Exceptional Children
1920 Association Drive
Reston, VA 22091

A Primer on Individualized Education Programs for Handicapped Children, edited by Scottie Torres, is available for $4.95 per copy from:

The Foundation for Exceptional children
1920 Association Drive
Reston, VA 22091

Learning Staircase, a complete program specifically designed to enhance the development of vital classroom skills in young children, is appropriate for both early childhood and special education settings. It includes a teacher-administered assessment inventory, twenty criterion-referenced modules with task

cards, parental report forms, and grid pads for record keeping. It is available for $199.95 per kit from:

Learning Concepts
2501 N. Lamar
Austin, TX 78705

Mainstreaming Series has practical suggestions to help integrate exceptional children into the classroom and enhance the special child's personal and educational development. Each book focuses on a single handicapping condition or a topic relevant to mainstreaming. The complete series costs $89.25. Each book can be purchased at a cost of $5.95 from:

Learning Concepts
2501 N. Lamar
Austin, TX 78705

Some of the books are:

338-00 Mainstreaming Exceptional Children
338-13 Individualized Educational Programming (IEP)
338-14 Education of the Severely/Profoundly Handicapped

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Vision Assessment and Stimulation for Deaf-Blind/Severely-Profoundly Handicapped Children*

Carmella Ficociello
Denver, Colorado

A common concern of teachers of deaf-blind children is "Just how much does he see?" Or, "How can I help him to use his residual vision?" So we send the child to the ophthalmologist to try to get answers to these questions, and we get back an eye report that reads something like this:

20/200 O.D.
Bilateral cataracts, removed
Microthalmia
Strabismus
Nystagmus, etc, etc.

Or, even more disheartening, the report says, "Untestable."

Such information does not answer our questions very well. It may tell us a little about how much the child sees, but it certainly does not tell us how to help him use his limited vision. And we are right back where we started from.

The subject of this paper is "Visual Assessment and Stimulation for Deaf-Blind/Severely-Profoundly Handicapped Children." In simpler terms, the author will attempt to answer these questions: "How much does the child see? And how can you help him use the residual vision he does have?"

Therefore the goal of this discussion is that the workshop participants/reader will be able to:

-Identify the parts of the eye and their function.
-Identify and explain common eye disorders found in deaf-blind/severely-profoundly handicapped children.
-Conduct an assessment of visual functioning in these children.
-Incorporate visual stimulation, goals, objectives, and activities into an Individual Educational Plan.

Historical Perspective of Vision Stimulation Programs

Prior to the 1950's and 1960's, the philosophy adhered to in the education of low vision children was that of sightsaving or sight conservation. The basis for this concept was the belief by eye specialists and educators alike that if a child used his residual vision,his eyes would be further damaged and an increased loss of sight would result. Therefore, methods and materials requiring a minimal use of vision were employed in teaching these children. Often they were educated as blind children; they learned to read Braille and to develop their tactile sense.

As medical research on vision indicated that the use of vision could not cause further damage to the eye and could not result in increased impairment, eye specialists began to encourage the use of, rather than the saving of, residual vision. It was also found that distance visual acuity (i.e., standard Snellen E Chart measures) did not necessarily reflect near visual acuity, and that considerable visual efficiency could be developed by teaching the child to use his near point vision (Bier, 1960).

The pioneer in the development of vision stimulation techniques and materials was Dr. Natalie Barraga. In 1962-1963, Dr. Barraga developed an experimental program for low vision children in which a positive change in the visual behavior of all the children was achieved (Barrage, 1964) In 1965, this study was repeated with similar results using many more materials, children, and teachers. This research suggested that "the use of vision in children with serious impairments in the eyes was a learned ability and could be taught" (Ashcroft, Halliday, & Barraga, 1965). Since that time, research on vision stimulation techniques and materials has steadily increased, and programs for the development of positive visual behaviors have begun both in public schools and in private institutions for the visually impaired.

Structure and Function of the Eye

Before discussing eye disorders and visual assessment, the reader must first have an understanding of the various parts of the eye and how they function. Figure 1 below is a crosssection of the eye, to refer to while the various parts are

discussed.

Starting from the right at the outer most part of the eye is the *conjuctiva:* a mucous membrane which lines the eyelids and covers the front part of the eye. Behind the conjunctiva is the *cornea,* the clear transparent portion of the outer coat of the eyeball, forming the front of the aqueous chamber.

Note on the diagram that the cornea, together with the sclera (the white part of the eye) form the protective coating of the eye.

Just behind the cornea is the *aqueous chamber,* which is filled with aqueous, a clear, watery fluid which fills the area in front of the lens. The *vitreous chamber* behind the lens is filled with vitreous, a transparent colorless mass of soft gelatinous material.

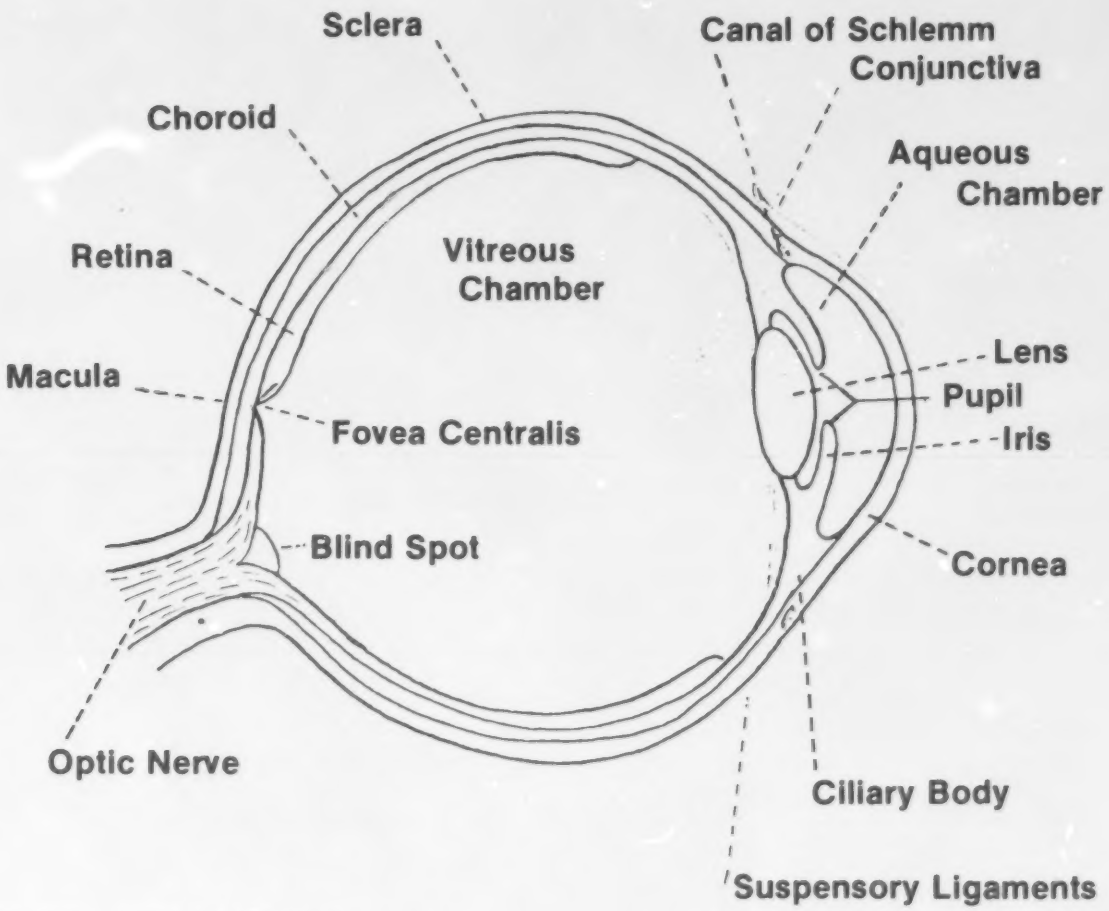
Just in front of the lens is the iris, the colored circular portion of the eye. The iris is a membrane which regulates the amount of light entering the eye by changing the size of the pupil, the contractible opening at the center of the iris.

The *crystalline lens* is a transparent, colorless body, the function of which is to bend the rays of light to focus on the retina. Attached to the lens are the *suspensory ligaments* which are multiple bands of tissue which hold the lens in place.

The *canal of Schlemm* is a circular canal through which the aqueous is excreted after it has circulated between the lens, iris, and cornea.

The *retina* is the innermost coat of the eye, formed of sensitive nerve fibers and connected with the optic nerve. On the retina is a small area

Figure 1



Michigan Department of Health

called the *macula* that surrounds the *fovea* and with the fovea, comprises the area of distinct vision. The retina is made up of two kinds of cells: rods and cones, which act as light receiving media. *Cones* are concerned with visual acuity and color discrimination. *Rods* are concerned with motion and vision at low degrees of illumination (night vision).

The *optic nerve* is the special nerve of the sense of sight which carries messages from the retina to the brain. (Efron & Duboff, 1975).

The most efficient way to explain how the various parts of the eye function together to help us to see is to use a diagram.

Figure 2 depicts the eye looking at a person. The light rays come into the eye through the pupil, (which opens or closes according to the amount of light.) As the light rays hit the crystalline lens, they are bent to allow them to focus on the retina in the back of the eye. At the retina, the light rays are transformed into electrical signals which are transmitted along the optic nerve to the cortex of the brain. The brain processes the signals from the optic nerve and "sees" the person.

Common Visual Disorders of Deaf-Blind/Severely-Profoundly Handicapped

The preceeding brief discussion of the anatomy and physiology of the eye, should assist the reader in understanding the visual disorders common to deaf-blind/severely-profoundly handicapped children:

(N/B. Although these children are called deafblind most of them have some residual vision and hearing. The concerns here are with those children who are not totally blind.)

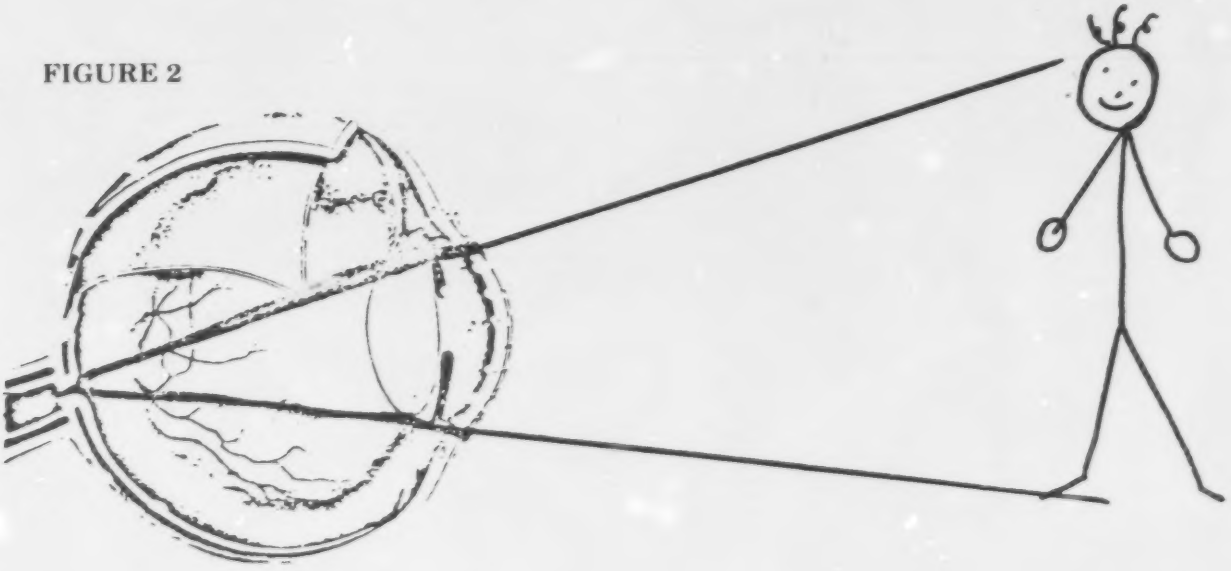
One common eye defect found in rubella children, (children who have visual problems due to their mothers' contracting German measles during pregnancy) is rubella retinopathy, characterized by widespread pigment deposits on the retina (Roy, Hiatt, Korones, & Roanes, 1966; Krill, 1967). Cooper (1967) found these deposits to have little or no effect on acuity, adaptation to darkness, color vision, visual field, or electroretinography. However, Efron (1965) observed that rubella children often have blank spots in their visual field, but, he does not state that this is due to retinopathy.

Another problem found in deaf-blind/severely-profoundly handicapped children is congenital cataracts (opacities of the crystalline lens of the eyes). These cataracts, usually bilateral, are generally surgically removed and the child wears cataract glasses or contact lenses.

Some children are born with microthalmia, abnormally small eyeballs. Microthalmia can effect the total refractive status of the eye (Roy, et al., 1966; O'Neille, 1967; Cooper, 1967).

An eye problem sometimes found is glaucoma, which may be congenital or secondary to another ocular defect, such as problems following an operation to remove cataracts (Roy, et al., 1966; Cooper, 1967). Glaucoma is an increase in pressure within the eye because the aqueous fluid does not escape. This pressure kills retinal cells and optic nerve fibers.

FIGURE 2



These children sometimes have strabismus, a failure of both eyes to direct their gaze at the same object simultaneously (Roy et al., 1966; O'Neill, 1967). Also, nystagmus, involuntary movement of the eyeball, is often present.

Retinitis pigmentosa is another common disorder. It is an hereditary degeneration and atrophy of the retina. The degeneration starts at the outer edges of the retina, affecting the rods and causing night blindness and gradually moving to the cones, resulting in tunnel vision or total blindness. Retinitis pigmentosa, also associated with Usher's Syndrome, is characterized by congenital deafness, and a gradual loss of sight starting around puberty due to retinitis pigmentosa.

Rentrolental Fibroplasia (RLF) is a disease of the retina occuring mostly in premature infants who receive excess oxygen in incubators. Masses of scar tissue form on the back of the eyes, and the retina detaches. RLF children are usually totally blind. (Efron & Duboff, 1975).

Assessment of Visual Functioning

Before discussing assessment, there are a few terms which need to be defined. The first is visual acuity. *Visual acuity* refers to the ability of the eye to see images clearly; to how well the eye sees. *Visual functioning*, refers to how well the person uses the vision he has.

The important thing to remember is that visual acuity does not necessarily reflect visual functioning. A child may have very poor visual acuity (due to any of the visual defects mentioned above), but may have excellent visual functioning, or vice versa. The reason for this is that *vision functioning is a learned behavior. The child must learn to use his vision.*

The third term to consider is *legal blindness* which is defined as 20/200 or less in the better eye with correction or a visual field defect in which the widest diameter of the visual field subtends an angle distance no greater than 20 degrees. In layman's terms, this means that even with the best correction (glasses, contacts, etc.), the person who is legally blind must be at 20 feet to tunnel vision with a visual field of 20 degrees or less. (Normal visual field is 180 degrees.

Many children who are deaf-blind/severely-profoundly handicapped may not be legally blind as related to their visual acuity, but they may be functioning as a person with very low vision because they have not learned to use their vision well. Because they are at low cognitive level, they have poor visual functioning. The remainder of this paper will be concerned with assessing the child's visual functioning and then planning vision stimulation goals and objectives to increase visual functioning as part of the child's Individual Educational Plan.

The following discussion of assessment interrelates the work of the author, that of Dr. Marvin Efron and Beth DuBoff in *A Vision Guide for Teachers of Deaf-Blind Children (Efron & Duboff, 1975)*, and that of Beth Langley and Rebecca BuBose in "Functional Vision Screening for Severely Handicapped Children," *New Outlook* (Langley & Dubose, 1976).

An assessment of visual functioning in a deafblind/severely handicapped child should cover four major areas:

1) *sensation* - the reception of light or forms by the retina and later the reception of the image by the brain.
2) *visual-motor skills* - the child's oculomotor and focusing skills, and skills in coordinating his eyes with other parts of his body.
3) *cognitive/perceptual skills* - the learned ability to construct a visual image, to be able to distinguish characteristics, and to give meaning to what he sees.
(Efron & Duboff, 1975)
4) *general observation* - regarding the condition of the eyes, the child's use of his vision, his tactile skills, optimum distance and size of objects, etc.

A. *Sensation*

1) The first thing to assess is the eye's reaction to a light stimulus. Shine a penlight directly into each eye, one at a time, at a distance of about 6", and note if the pupil constricts.
2) The next thing to look for is the child's ability to attend to light. One way to assess this would be with a penlight or dripless candle. Flash the light, (or hold the candle) about 12" from the child's face, and record if he responds by looking at, startling, becoming excited, increasing or decreasing activities, reaching for the light (eye-hand coordination), etc.
3) To assess the child's peripheral vision, stand behind the child, move the light around the side of his head, and record if he turns his head or eyes to look at the light. (You will need someone in front of child to help you observe this.)
4) To check for blank spots in the visual field use two penlights. Again while sitting in front of the child, direct one light to the center

of the eye at a distance of 12-18". Hold the other light stationary in various positions around the eye (like the numbers on a clock). Turn on the first light, and while the child is attending to this light, turn it off and at the same time; turn on the other light. Record if the child immediately shifts attention to the second light. This activity may have to be repeated many times before an accurate assessment of blank spots in the visual field can be obtained.

B. *Visual-Motor Skills*

1) The first thing to look for is the child's ability to track moving objects, which gives the teacher information on the child's ability to coordinate the muscle surrounding the eye: Again, use a penlight held about 12" to 18" from the child's face. Starting at the center of the face, move the penlight horizontally to the left and then to the right in a 180° arc. Record whether he follows the light with his eyes or by moving his whole head. (Moving just the eyes is a higher level of functioning.) The process is then repeated vertically, obliquely and in a circle.
2) You also want to check for convergence—at what point do the eyes converge when an object is moved toward the child. Using the penlight, start at about 18" from the child and slowly move the light toward the bridge of his nose to a distance of about 4". Record whether he is able to follow the light smoothly, if one eye turns out or in before the 4" distance, or if he's uncomfortable seeing that close and either turns his head or pushes the object away.
3) Efron has noted that many children prefer colored light to white light. Try putting strips of different cellophane over the light when doing these activities. Some children may show a preference to a certain color which can be used in materials to stimulate his vision. (Efron, 1975)
4) Most children will respond to illuminated objects (such as lights and candles) before responding to non-illuminated objects. When you have tried each activity with the light, you should also do them with small brightly colored objects in front of him (particularly objects that he likes) and recording his ability to shift attention from one object to another.

(N.B. If a child has cerebral palsy, an excellent reference to assist in assessing the above skills is "Some Relations of Oculomotor Coordination to Postural Control and Intervention in Cerebral Palsied and Multi-Handicapped Children" by Nancy Fieber of Meyer's Children Rehabilitation Institute.)

6) To check for eye-hand coordination and figure-ground discrimination, place several objects of different sizes and colors on the floor (which should be of a contrasting color so that the objects can be easily seen) and have the children pick them up. Candy and other food are particularly good for this activity. Record how easily he picks up the objects, what size they must be for him to see them, and how close he must be to see them.
7) Other activities to check for eye-hand coordination involve giving the child different objects, one at a time, to play with for a short time. Then take the object and hold it in front of the child and record if he reaches for it, and how accurate his aim is. Also, can he cross his midline to reach for objects?
8) To check for eye-foot coordination, place several pieces of brightly colored paper on the floor as a path and have the child walk from one paper to the next.
9) Record his ability to walk up and down stairs.

C. *Cognitive/Perceptual Skills*

1) Sensorimotor level
   a. To assess a child's *visual pursuit* of an object, give him an object and let him play with it for a moment. Then take it from him and note if he visually follows the object with his eyes. Or drop the object off to the child's side and see if he follows with his eyes as it drops to the floor.
   b. The child's understanding of *causality* — that he can cause something to happen, can be assessed by recording whether after observing the teacher doing the following activities, he pats at a mobile, hits tippy clown or happy apple to make it move, or winds up a mechanical toy to make it walk.
   c. The child's *means-end behavior* - whether he can develop a means to get to a desired goal, can be observed in his pulling a string attached to a toy that is out of his reach or whether he can use a stick to bring a desired object to him.
   d. *Object permanence* - the child's realization that an object continues to exist where he can no longer see, hear, touch, or smell it, can be observed in his searching

for a ball that has rolled behind another object, or his reaching for an object which has been hidden under two or three screens.

e. *Object concept* - can be observed when the child pats at a few familiar objects in a book or when he demonstrates his knowledge of the function of a few familiar objects (when handed a cup, brings it to his mouth; handed a hairbrush, attempts to brush hair).

f. *Spatial relationships* can be observed in the child's ability to recognize the reverse side of an object or an upside down object and returning it to its upright or front side position. His ability to put objects in and take objects out (depth perception) of containers and to stack objects should also be observed.

For a more complete assessment of cognition, at the sensorimotor level, see *Assessment in Infancy* by Uzgiris and Hunt or the *Callier-Azusa Scale* by Stillman, et. al.

2. Pre-operational level

a. Activities to measure the child's ability to *match and sort identical objects, shapes, sizes, and colors* should be included in the assessment. Fromboards or plastic and wooded forms of various shapes, sizes, and colors are useful in these activities. An important thing to remember is that the materials must vary only in the attribute you are measuring. For example, if you are assessing the child's ability to match by size, the shape and color of the objects should be the same; the only variable is the size.

b. To assess the child's *understanding of pictures* have him match objects to pictures of the objects and then match pictures to pictures.

c. *Visual sequencing is seen in the child's ability to duplicate the order in which beads are strung, or colored pegs are put in a formboard or in his ability to seriate a group of objects from large to small (or small to large).*

D. *General observations of the eye should also be recorded*

1) General condition of the eyes.
-Are they infected?
-Do they constrict when light is presented?
-Is there considerable nystagmus?

2) Use of the eyes.
-Does the child use one eye more than the other?
-Does the child use both eyes simultaneously?

3) Body movements
-Does the child move his head to see more clearly from a particular part of the eye.
-Does the child adjust his body to aid in focusing?

4) Tactile skills.
-Does the child depend on tactile information to discern the nature of objects.

5) Distance and size.
-Is there an optimal distance at which the child can see objects.
-What size must the objects be for the child to see them.

Incorporating Visual Stimulation, Goals, and Objectives into an Individual Educational Plan

Because each deaf-blind/severely-profoundly handicapped child differs in problems, abilities, and behavior, it is imperative that an individual program plan be designed to meet each child's level of functioning, the development of long term goals and short term objectives for the child from which sequences activities and materials are designed, and documentation to record the progress the child makes in reaching both long term goals and short term objectives.

Although this discussion is primarily concerned with visual goals and objectives, it is important in planning activities to incorporate several goals into each activity. One activity might include a visual goal, a motor goal, and a langrage goal. In this way, the child is given an integrated program and does not simply develop splinter skills. The materials used should be objects found in the child's day to day surroundings so that he gains experience with these objects and develops an awareness and understanding of the environment.

When the initial evaluation is complete, the teacher uses this information, along with information from the child's ophthalmological report, to develop long term goals and short term objectives, activities, materials, and methods of collecting formative and summative data on each child. Many of the same activities used in the initial evaluation can be used and elaborated on to develop these skills. It is important to use several different methods and materials since different children will be stimulated by different things.

The Efron and Duboff book mentioned previously is an excellent resource on techniques and materials for developing visual functioning.

The following outline identifies components of a visual stimulation program.

I. Visual Skills
   - A. Attention (to light objects)
   - B. Localization
   - C. Tracking
   - D. Scanning
   - E. Figure-ground discrimination

II. Cognitive/Perceptual Skills
   - A. Sensorimotor level
     1. Visual pursuit
     2. Causality
     3. Means-end behavior
     4. Object permanence
     5. Object concept
     6. Spatial relationships
   - B. Pre-operational level
     1. Discrimination of objects, shapes, sizes, colors, and pictures.
     2. Sorting and classification
     3. Sequencing and seriation

III. Body Image: Co-active movement, imitation, identification of body parts, laterality.

IV. Motor Skills Involving Vision
   - A. Body movement, crossing the midline, running, jumping, hopping.
   - B. Eye-hand coordination
     1. Gross motor: previous suggestions plus ball and bean bag activities such as throwing, catching bouncing,hitting targets.
     2. Fine motor: cutting, pasting, painting, coloring.
   - C. Eye-foot coordination: previous suggestions plus walking forward sideward, backward on a line; jumping over objects; kicking a ball.

V. Visual skills and mobility: in the classroom, building, outside, home.

VI. Vision and other areas of the child's program:
The child should also be encouraged to use his vision in performing other activities. For example, if the child is learning to feed himself, encourage him to use his vision in finding the spoon or food on the plate. If he is learning to dress himself, encourage him to use his vision to find his clothes and to put them on.

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Auditory Assessment for the Deaf-Blind and Severely/Profoundly Handicapped Children

by Terri Allen
Educational Specialist
Mountain Plains Regional Center for Handicapped Children
Denver, Colorado

In working with teachers a common concern is the interpretation and understanding of audiological reports and the implications toward educational planning.

In order to provide for the hearing impaired child it is important to understand the entire process. In the next few pages we will be discussing the following:

- structure and function of the ear.
- common disorders of deaf-blind and severely/profoundly handicapped children.
- assessment of auditory funtioning.

STRUCTURE AND FUNCTION OF THE EAR

The auditory systems or hearing mechanisms consists of three divisions: the outer ear, the middle ear and the inner ear. As with any physiology, the structure and function are extremely complex. However, the following will explain the basic structure and function of the ear.

The outer ear consists of the pinna and the canal and serves to collect acoustical energy and direct it to the typmanic membrane or eardrum.

As the energy hits the ear drum changes into mechanical energy, it causes it to move in and out sending the vibrations into the middle ear. The malleus or hammer is set into motion and it activates the incus (anvil) and strapes (stirup) and the ossicular chain vibrates as one unit. The ossicular chain serves to deliver sound wave vibrations to the oval window which lies between middle and inner ear and to protect the inner ear from strong vibrations. Hearing losses that occur in this area are conductive as there is a breakdown in the mechanical function. The Eustachian tube serves to ventilate the middle ear and equalize the pressure.

As the stapes rocks in the oval window it produces a pressure wave in the periloymph (fluid) of the vestibule in the inner ear. The round window, just below the oval window, reacts to the movement of the stapes in the oval window and serves to relieve the pressure of the inward movement. Although the relationship between the two windows is complex, the simple relationship is as the footplate of the oval window is pushed into the vestibule, the round window membrane bulges outward toward the middle ear. Without this reciprocal action between the two windows, the perilymph (fluid) would resist the action of the ossibular chain which would restrict the ear drum from vibrating.

Again, hearing losses that occur because of this fluid are conductive.

The fluid motion of the oval window to the round window is transmitted through the cochlear duct causing movement of another fluid, endolymph within the cochlear duct and movement of a membrane named the basilar membrane. The Organ of Corti, in the cochlear duct contains hair cells that produce a shearing action as the basilar membrane moves and initiates nerve impulses. The impulses are carried by nerve fibers to the main trunk of the acoustical portion of the eighth nerve and then to the brain. The cerebral cortex, thus, eventually hears the vibrations impinged on the ear drum.

Hearing losses that occur in the inner ear are classified as sensori-neural as there is damage to the auditory pathway.

What has just been described is hearing through air conduction. There is another aspect of hearing that will be briefly mentioned. The inner ear is encased in bone and vibrations of this bone will cause direct movement of the inner ear fluid. The sensation of hearing can then be produced without vibrations produced through the ear drums and ossicular chain. The mechanism for sound by bone conduction is much less efficient than for air conduction because sound has to be of sufficient intensity to set the bones of the skull into motion prior to being heard. Also, sound waves going through skin, fluid and bone are not accurately transmitted thus hearing is distorted.

Bone conduction provides an alternative for

hearing by persons who have impairment of air conduction in the outer or middle ear. They can hear providing that the inner ear is functioning normally and that sound can reach the inner ear.

COMMON AUDITORY DISORDERS OF DEAF-BLIND AND SEVERELY/ PROFOUNDLY HANDICAPPED CHILDREN

In discussion of auditory disorders there are five basic categories: conductive, sensory-neutral, mixed, central deafness and psychogenic.

A. Etiology of Conductive Impairments
(Conductive loss refers to any dysfunction of the outer or middle ear in the presence of a normal middle ear. The perception of sound is not the difficulty with the conduction of sound to the analyzing system).

1. *The Outer Ear*
   a. Blockage of external auditory canal by cerumen (wax) or other foreign substances.
   b. Artesia (occlusion) of the external auditory canal, often caused by a middle ear anomaly - absence of drum and ossicles.
2. *Middle Ear*
   a. *Otitis Media /inflamation or infection* of the middle ear.
      a) *Destention of the eardrum* - caused by fluid of middle ear - usually a result of infection. (Fluid can be non-suppurtive or suppurative (with or without pus). Pressure in middle ear painful and partially immobilized eardrum.
      b) *Retraction of the ear drum.*
         1. Blockage of the Eustachian tube.
         2. *Serous otitis media* is fluid in the middle ear with a retracted ear drum. This usually occurs when sterile fluid remains in the middle ear cavity after being treated with antibiotics for suppurative otitis media.
         3. *Adenoids and/or allergies* - pressure in the middle ear from blockage of the Eustachian tube.
      c) *Mastoditis* - infection of the air cells of the mastoid process of the temporal bone (bone behind the outer ear). If left untreated the infection of the temporal bone will work its way to covering of the brain, the meninges, causing meningites.
3. *Inner Ear*
   a. *Otosclerosis* - disease process affecting the bony capsule of the inner ear turning it into spongy bone. A progressive hearing loss is produced through the fixation of the stapes in the oval window, due to invasion of spongy bone. The disease is hereditary and is accompanied by low frequency tinnitus (ringing in the ear). Women more suceptible than men.

B. *Etiology of Sensori-neural Impairments*
Sensori-neural hearing losses are due to pathology in the inner ear or along the nerve pathway from the inner ear to the brain stem. A pure sensori-neural impairment occurs when the outer and middle ear are normal and sound is properly conducted to the fluid of the inner ear but cannot be analyzed or perceived normally. Most babies born with hearing losses will have sensori-neural impairments with the exception of congenital atresia, 8mentioned above.

1. *Congenital Causes*
   a. *Heredity* - a defect in the genes.
   b. *Damage to the embryo in utero.*
      1) Disease of mother during first trimester of pregnancy. (Rubella)
      2) Injury through trauma.

In discussing the auditory assessment of deafblind and severely/profoundly handicapped children, we must concern ourselves with not only what the child hears but how they learn. Consideration must be given to the fact that while pure audiometric testing using pure tones and speech is very effective with persons (mainly adults) who are adventitiously deaf and have acquired language, those techniques have been shown to be ineffective in dealing with congenitially hearing impaired children. One reason is that congenitally deaf children have not developed languagem and another is that most children below the ages of four and those that are now functioning at all ages find pure tones meaningless (Franklin, 1977). Research has indicated that the hearing impaired and the deafblind child will often respond better to environmental sounds and speech.

In assessing the auditory functioning of the deaf-blind and severely/profoundly handicapped child, it is appropriate to review the responses of normal infants as a comparision. Marion Downs developed the *Auditory Behavior Index* which deals with the level of response to a variety of stimuli in infants from birth to the age of two.

The following chart is a modification by Franklin of the *Auditory Behavior Index* by Downs as it appeared in *Hearing in Children*

Levels of Response to Sounds in Infants

Age	Noise-Makers	Warbled Pure Tones	Speech
0 - 6 weeks	50-70 dB	78 dB	40-60 dB
6 wks. - 4 mos.	50-60 dB	70 dB	47 dB
4 - 7 mos.	40-50 dB	51 dB	21 dB
7 - 9 mos.	30-40 dB	45 dB	15 dB
9 - 13 mos.	25-35 dB	38 dB	8 dB
13-16 mos.	25-30 dB	32 dB	5 dB
16 - 21 mos.	25 dB	25 dB	5 dB
21 - 24 mos.	25 dB	25 dB	3 dB

(Northern and Downs, 1974).

As indicated, very young infants respond to noise-makers and speech at comparable levels. However, responses to speech occur at seven to nine months more readily than to noise-makers and after that there are consistantly more responses to speech at very low levels.

However, the deaf-blind severely/profoundly handicapped infant probably will not respond to noise-makers and speech at the same levels as normal infants. The levels of response to sounds on infants can be utilized as a comparision to deaf-blind and severely/profoundly handicapped children due to developmental delays in these children.

Because hearing handicapped children do not readily respond to standard audiometric testing there are several things that can be done in the classroom to establish the child's functional hearing. There are a variety of noise-makers that can be used in addition to speech to determine the level of hearing. These noise-makers have a variety of frequency (tones) and energy (intensity) and have been calibrated by the audiologist.

A child may not respond to distinct conversation but may respond to the *knocking of sticks*. He may have a mild hearing loss (50 dB).

This child will hear *conversations* within a distance of three to four feet. There will be *difficulty* in hearing *faint or distant speech*. Speech and vocabulary may be affected in the *higher frequencies*. The child will need favorable seating and *face-to-face conversation*. A child with this loss will need a *hearing aid, auditory training, speech reading, speech correction* and *language development*.

If a child does not hear the sticks but does hear a *small bell* (60 dB),a triangle (65 dB) and a squeaky noise (65 dB), he probably has a *moderate hearing loss*. Children with this type of loss will hear *loud conversation* at three feet, and will have difficulty in *group discussion*. There will be *speech loss* in *higher frequencies* causing problems with *s, z, sh, ch, and j*, and substitutions will occur: *t for d, k for g*. Language and vocabulary will be deficient. This child will need the therapeutic procedures listed above at a more intense level.

If a child does not respond to the things listed above but does respond to a *cymbal* (75 dB) he has a *severe hearing loss*. At this level the child may respond to a *loud voice one foot from the ear*. He may also respond to *some environmental sounds spontaneously*. The *voice* may have *some normal qualities, vowels may be discriminated but consonants are difficult*. This child will need an intense program for auditory training, speech development, language development and other special education procedures.

If a child only responds to a *large bell*, or *busy street traffic*, he has a profound loss and is severely impaired. He may hear a *loud shout one inch* from the ear, and *most stimuli will have to be visual*. Speech and language do not develop spontaneously and are severely delayed. Speech reading and/or sign language and *language development are critical educational components*. A word of caution, it is important that the child respond to auditory stimuli and not to visual or

tactile stimuli.

This implified procedure assumes that the hearing loss is equal across all frequencies or tones. However, many children have a greater loss in some frequencies as compared to others. This is determined by audiological testing. The results of the testing are described on a chart called an audiogram. It shows the response of the child to various frequencies or tones at various levels of intensity or decibels.

This is an example of an audiogram with the various levels of hearing loss just described.

While noise-makers have more specific tones and intensity levels, normal speech has a broad spectrum of tones and intensities as shown in the next chart.

If a child has a moderate loss of 55 dB a child will lose practically all of the normal speech sounds. Implication of this loss were discussed and the needs were established. As mentioned previously children do not have straight losses across the spectrum.

This is an example of a mild to moderate conductive hearing loss. The affect of that is a distortion and a loss of part of the speech pattern.

As most congenitally hearing impaired children have *sensori-neural hearing losses,* we can see on the audiogram an *example of the extensive severity,* the complete loss of the speech spectrum. Therefore it was previously emphasized that a child with this loss requires another source of communication.

Diagnosis may indicate either a conductive or sensori-neural hearing loss. A conductive loss has the following characteristics. The child tends to speak in a relatively quiet voice and speech discrimination is relatively unimpaired. He is able to tolerate loud speech and other sounds that reach the discomfort threshold of the normal ear. The loss tends to be "flat" in that there is a loss of sensitivity for sounds at all frequencies and he tends to hear better in noisy places rather than quiet ones and the losses accompanied by tinnitus or head noises are low in pitch.

A sensori-neural loss is characterized by the child speaking with a loud voice even if it is inappropriate. Sometimes there is difficulty in speech discrimination, and there is better hearing for lower frequencies than high frequencies. It is important to remember that the difficulty is in the understanding not the conduction of sound. Children with this type of loss frequently experience recruitment, a rapid disproportionate increase of loudness. Recruitment and a low tolerance level are characteristics found only in sensori-neural losses or mized losses containing sensori-neural element.

In conclusion, although the discussion has been the auditory assessment of the deaf-blind and severely/profoundly handicapped child, it is with the total child that we are concerned. Even though we assess the various behaviors separately, it is critical in developing and implementing the individualized educational programs that we integrate several goals and objectives into realistic activities so that the total child is developed.

ASSESSMENT OF COGNITIVE DEVELOPMENT IN THE YOUNG CHILD WITH SEVERE AND MULTIPLE HANDICAPS

Rebecca DuBose, Ph.D.
George Peabody College
Nashville, Tennessee

Cordelia Robinson, Ph.D.
Meyer Childrens Rehabilitation Institute
Omaha, Nebraska

Clarke and Clarke (1971), cite several purposes of assessment of developmental status of children:

1) to describe individuals at a fixed point in time in reference to a normative or contrast population.
2) predict status at a later point.
3) provide a behavioral profile of assets and deficits as a starting point for remedial programs.
4) provide an objective means of reporting progress of an individual or group.

Evaluation of severely handicapped children is predominately directed toward the latter two purposes.

Formal mental measures play an important but limited role in the assessment of young deaf/blind children. Formal measures are usually norm referenced and yield data expressed in some form of mental or developmental ages. This permits comparison of a child's performance to performances of a normative sample and to other age-referenced test results. The formal tests are likely to be known to many agencies, thus the results can be shared among care systems. The results are useful in monitoring child change behavior across time. In some cases, formal measures yield information useful in identifying instructional goals and objectives in planning acquisition strategies. Perhaps the most important outcome of formal assessment is a quantifiable result that can be used to measure behavioral change and to serve as an entry to services.

The formal measures listed in Table I are those frequently used in the assessment of deaf/blind youngsters. Almost always adaptations must be made in the administration of the items.

Within the two intervention programs which the authors direct in Nashville (Dr. DuBose) and Omaha (Dr. Robinson), the Bayley Scales of Infant Development are used to serve the third and fourth functions identified for assessment by Clarke and Clarke. The mental scales provide information regarding child development in receptive and expressive communications, problem solving, eye-hand adaptations and social responsiveness. This information generates a behavioral profile across these areas and permits researchers/educators to monitor a child's progress both with respect to overall development and the skill areas noted.

While Clarke and Clarke's second purpose prediction of the individuals status at later points in time, is of lower priority to staff in our Infant Programs, other professionals and parents have needs for this information and request that staff members interpret the data relative to their concerns. In general, tests of "infant intelligence" such as the Bayley have poor predictive validity. In 1970 Bayley wrote "It is now well established that test scores earned in the first year or two have relatively little predictive value in contrast to tests at school age or later. Although they may have validity as measures of the child's cognitive ability at that time." Studies involving combination of predictions have indicated that social class of the parent is a reasonably good predictor of IQ at age 11 and addition of an IQ from an infant test does not add to the predictive power.

While infant tests in general and the Bayley specifically have been much maligned with respect to prediction of specific IQ, studies involving their use with clinical populations such as children evaluated at diagnostic centers for developmentally disabled indicated that within categories of deviations from average "i.e., mild, moderate, and severely retarded," their predictive power is reasonable (Vander Veer and Schweid, 1974). That is a child who tests as mildly retarded

at age 18 months is likely to test as mildly retarded at age 4 years. For children without major sensory or physical impairments we do not have much risk of labeling a child retarded when they are not retarded, assuming that an evaluation was done by a skilled and prudent examiner. Probabilities of such a misclassification are further decreased by evaluating the child on more than one occasion at least three months apart. Other studies have supported the predictive power of intelligence scales with severely multiply handicapped children. DuBose (1977) examined 28 severely multiply handicapped children (primarily deaf/blind) over a five-year period and found early results from infant intelligence scales to be highly predictive of later test performance.

It must be noted that the Bayley Scales are described by the author, Nancy Bayley, as not appropriate for children with significant sensory impairment or physical impairment especially in the upper extremities. Also, one cannot obtain an exact developmental quotient below 50 from use of the tables in the manual. Use of the test with any of these populations is restricted to the third and fourth purposes identified for psychological assessment and reports on physical, or sensory handicapped and retarded children should contain a statement cautioning the reader of the limitations on interpretations.

We are hesitant to prognosticate regarding cognitive potential on the basis of any infant assessment for a physically or sensory handicapped child. With respect to prediction of future status of the child, existing tests can give us some useful information within broad categories. It is important that parents be given an explanation of what the test can and cannot do in addition to giving them test results. Psychological tests can be very powerful tools for conceptually organizing and evaluating intervention progress. It is important to be respectful of the authors purposes in developing the instruments and not place more responsibility and credit with them than they were intended to carry.

In our use of the Bayley Scales we frequently make adaptations in the type of materials that are used and in the way items are administered. For example, we might use a piece of string with a handle on the end of the string to make it easier for a physically handicapped child to demonstrate that he is able to use a string as a tool to obtain an object out of reach. In an adaptation of administration, we may stabilize a child's head and trunk if he does not yet have setting balance in order to make it possible to attempt some problem solving activities.

When we make modifications in the administration of the test we make note of such changes in our report and we specifically state that the assessment is then not valid as a description of the child's functioning with respect to a normative group or for prediction of future status. Rather the test results are useful then for design of specific educational interventions and monitoring changes in the child development.

In addition to the Bayley we use the Uzgiris and Hunt Ordinal Scales of Infant Psychological Development (1975), as a means of describing our infants with a behavioral profile and as a means of checking progress of the individual child. These scales provide us with specific descriptions of the child's level of functioning with respect to object permanence, mean-end skills, understanding of causality, spatial skills, imitation and schemes in relation to objects. These sensorimotor developments form the basis of our curriculum in the parent mediated Infant Development Program at Meyer Children's Rehabilitation Institute.

The Uzgiris-Hunt Scales offer several advantages over the Bayley Scales with respect to our third and fourth functions of assessment, providing a behavioral profile, and monitoring progress.

1. They involve assessment of the child's understanding of specific concepts and consequently are not tied to standardized materials. One may use any toy that is motivating for the individual child.
2. Materials may be modified to the physical abilities of the individual child without damage to the assumptions underlying the assessment.
3. The division of items among several scales better lends itself to providing a profile.
4. The assessment provides a conceptual base for organizing instruction.

Our major focus in assessment of cognitive functions is the development of a description of a child's behavior in a standardized manner that will yield us useful information for planning educational instruction and monitoring developmental progress.

We take the information obtained from the sensorimotor assessment and use that information to establish specific objectives for a given child in each of the sensorimotor areas. An important component of the administering and interpretation of the assessment is an undertaking on the part of the educator how a

child's particular impairment may impact upon the developing child. It is important to recognize the impact of significant visual impairment, blindness, deafness, or a physical disability upon each of the sensorimotor developments. One cannot assume that multiple handicaps are additive in their effects; they are interactive and may be multiplicative. It becomes extremely important to analyze a child's behavior to determine how functional the child's vision and hearing are in performing the tasks. This information leads to adaptations in administration of tasks, to program planning with respect to arranging stimulus events to permit optimal use of sensory capacities, and frequently, to further examination by qualified vision and hearing professionals.

In Table 2, the reader will find a very brief introduction to the sensory motor developments, such as object permanence, means-end and causality skills. More intensive descriptions may be found in Robinson and Robinson (1978). In addition in Table 3 is a listing of intervention strategies in each of these areas that might be appropriate for the sensory handicapped child.

While one is usually in the position of having to assess a child's functioning in a specific situation, the critical questions that we have concerning any child's development is the extent to which a child's behavior generalizes across the various individuals and settings with which the child comes into contact during the course of his day. Assessment and corresponding planning of intervention is a course not complete until the educator has considered the extent to which the behaviors looked for, are within the child's repertoire across appropriate situations. It has been our experience that the steps of generalization of function across situations is frequently neglected in a child's instruction. To not include planning for such generalization in the instruction and assessment of effectiveness of instruction is neglectful of an important component of a child's educational plan.

Table I
Selected Formal Measures
for
Young Deaf-Blind Children

Test	Age	Purpose	Description
Developmental Activities Screening Inventory Teaching Resources 100 Boylston Street Boston, MA 02116	6-60 months	Screening	A teacher-administered screening instrument to determine general cognitive adaptive functioning levels, accompanied by developmental activities suggestions.
Callier Azusa Callier Center for Communication Disorders 1966 Inwood Road Dallas, TX 75235	0-7 years	Screening	Provides for assessment of socialization, daily living skills, motor development, perceptual abilities and language development. An observation model is used.
Infant Intelligence Scale Psychological Corp. 757 3rd Avenue New York, NY 10017	0-30 months	Cognitive	Contains manipulative tasks for determining sensory motor development, including imitation, problem solving, and a few language items.
Bayley Scales of Mental Development Psychological Corp. 757 3rd Avenue New York, NY 10017	0-30 months	Cognitive	Similar to Cattell. It includes separate motor and social scales in addition to a mental scale.
Ordinal Scales of Psychologcal Development Uzgiris, I. C., & Hunt, J. McV. Assessment in infancy: Ordinal scales of psychological development. Urbana, IL: University of Illinois Press, 1975	Birth-24 months	Cognitive Development	Series of 6 ordinal scales, based on Piagetian observations of sensory-motor schemas. Concerned with the hierarchial interrelationship of achievements at different levels. Six scales include visual pursuit and permanence of objects, development of means for obtaining desired environmental events,development of vocal and gestural imitation, development of schemas for relating to objects, development of operational causality, and construction of object relations in space.

Test	Age	Purpose	Description
Merrill-Palmer Scales of Mental Development Stoelting Co. 1350 S. Kostner Ave. Chicago, IL 60623	18-71 months	Cognitive Development	The scales assess not only the child's cognitive abilities, but expressive and receptive language and fine and gross motor skills. Comprised largely of performance items, some of which are timed. Provision is made for a child's refusal of an item.
Environmental Pre-Language Battery Charles E. Merrill Publishing Co. 1300 Alum Creek Drive Box 508 Columbus, Ohio 43216	Early Language Development	Language Development	Designed for use by parents, para-professionals, and teachers in assessment of the child's comprehensive, verbal and gestural imitation ability, and expression of one-and emerging two-word constructions.
Environmental Language Inventory Charles E. Merrill Publishing Co. 1300 Alum Creek Drive Box 508 Columbus, Ohio 43216	One-and two-word utterances	Language Development	Intensive assessment of the child's application of semantic grammatical rules in two-and threeword utterances. The child's expressive language is assessed in imitation, conversation, and play as he is provided with contextual and non-linguistic cues.
Sequenced Inventory of Communication Development University of Washington Press Seattle, WA	0-48 months	Language	This tool can be used as either an interview scale or administered to the child. Receptive and expressive skills are functionally assessed.

Test	Age	Purpose	Description
Inner Language Scale Child Study Center Peabody College Box 158 Nashville, TN 37203	Birth-24 months	Language Development	The way in which a child responds to objects and environmental stimuli is assessed on this scale, based on Piagetian theory.
Fokes Motor Development Scales (In Stephens, Beth, **Training the Developmentally Young,** New York: John Day, 1974)	Birth-7 years	Motor Development	Provides height, weight, and characteristic behaviors of children of each level assessed. Assesses skills of upper and lower extremities, such as locomotion, climbing, jumping, balance, reach, grasp, release, manipulation, throwing, writing, and perceptual-motor abilities.
Peabody Developmental Motor Scales Monograph No. 25 IMRID Publications George Peabody College Nashville, TN 37203	Birth-7 years and Birth-6 years	Motor Development	An instrument for use in assessing gross and fine motor development. The scoring section allows the child credit for minimum success rather than a pass or failure. The scales are accompanied by developmental activities for each area assessed.
Lakeland Village Adaptive Behavior Grid Lakeland Village Medical Lake, WA 99022	Birth-6 years	Social/Self-care	Allows the evaluator to derive developmental levels for areas such as eating, grooming, dressing, mobility, recreation, socialization and behavior control, all of which are task analyzed.
Maxfield-Buchholz Scale of Social Maturity for Pre-school Blind Children American Foundation for the Blind, Inc. 15 West 16th St. New York, NY 10011	Birth-6 years	Social/Self-care	Adaptation of the Vineland Social Maturity Scale for blind children. This scale of social development evaluates children in areas of general motor development, dressing, eating, locomotion, socialization, communication, and occupation.

Table 2

Sensorimotor Stages and Accomplishments

Sensorimotor Stage	Object Permanence	Means-End	Causality	Spatial
I. *Reflexes*				
Slight modifications of initial reflexes, (sucking, grasping arm, leg movements).		No differentiation of developments in these areas. Behavior is at the level of exercising reflexes.		
II. *Primary Circular Reactions*				
Reflexes undergo adaptations to environmental experience; coordinations between responses beginning (e.g., looking at grasped object).	There are no special adaptations as yet to the vanished object. Related developments during this period include visual pursuit of a slowing moving object by: 1. following through arc of 180 degrees 2. reacting to disappearance of a slowly moving object by maintaining gaze at point of disappearance.	Differentiation between means-end and causality is not possible at this stage. The following are prerequisites for both 1. visual examination of hand, 2. visually directed grasp 3. repetition of movements which produce environmental effect, 4. refinements in reach and grasp.		Child: 1. switches gaze from one visual stimulus to another, 2. turns to localize a noise made outside of his visual field, 3. looks to other end of opaque screen when object disappears at one end.
III. *Secondary Circular Reactions* Schemata are repeated. This systematically produces a change in, and effect on, the environment.	Child: 1. moves to look after a fallen object, 2. searches for the partially hidden object, 3. returns gaze to starting point when a slowly moving object 4. searches for object under single screen	Child: 1. moves to object out of reach 2. pulls a support to obtain a toy attached to the support	Child responds to cessation of a spectacle that he cannot reproduce by touching the adult or the toy.	Child: 1. follows movement of rapidly moving object, 2. rotates trunk to retrieve object moved behind him 3. examines object by turning them over.

Sensorimotor Stage	Object Permanence	Means-End	Causality	Spatial
IV. *Coordination of Secondary Circular Reactions* Schemata are used together for intentional results.	Child finds an object hidden under one of two screens by searching directly under the correct screen, up to three screens.	Child: 1. does not pull support if object is held above it, 2. expands pulling scheme to other tools such as strings both horizontal and vertical (vertical use requires object permanence as object is not in view.). Child uses an unattached tool such as a rake to get an object.	Child responds to cessation of a spectacle by handing the toy to the adult, but may first try to reproduce the spectacle by direct action on the toy.	Child: 1. brings functionally related objects together, i.e., cup and spoon. 2. begins container play by taking an object out of container then placing one in at time, building to larger numbers.
V. *Tertiary Circular Reactions* Child, through trial and error procedures, discovers new means to obtain desired goals. Requires combination of previous schemata.	Child: 1. finds an object after a single invisible displacement, 2. follows objects through a series of visible displacements and searches in correct location, 3. finds an object hidden from view and taken through successive displacements		Child: 1. lets the toy continue activity without intervention, 2. attempts to activate the toy after demonstration.	Child: 1. empties container by dumping, 2. moves around barriers to obtain objects, 3. builds a tower of blocks.
VI. *Invention of New Means through Mental Combinations* Child is assumed to solve problems representationally and then applies a solution to the problem situation.	Child searches along path in a complex problem when object is left in first location and the examiner's hand moves through the entire path. The child searches systematically until he finds the object.	Child solves problem through "foresight"; for example, does not attempt to stack a solid ring on a pole.	Child displays spontaneous attempt to activate a toy.	Child recognized absence of familiar persons.

Table

DEVELOPMENTAL TASK:	*INTERVENTION STRATEGY:*
Visual Tracking: When blindness prevents fixation, visual tracking will not develop in the typical manner. This impacts on object tracking, person identification, directed reach and grasp, and discovery of body parts as attachments and tools.	1. With child in supine position or supported in an infant seat, present a brightly colored object at midline. After visual fixation occurs, gradually move object horizontally, then vertically and circular to attract sustained visual attention. 2. For visually impaired child, adapt No.1 using lights and objects varying in size and color. 3. Attach mobiles t child's crib or a musical cradle gym across his crib. Activate to secure fixation then sustained following of movement.
Sound Localization: Deafness prevents child's use of auditory cues to identify objects in space associated with cue. This presents child with fewer opportunities to recognize sources through many forms and begin to expand concepts into representational forms such as words.	1. Alert child through a noisy toy activated slightly out of his visual field. If child fails to turn his head to localize sound, activate toy while in the child's visual field, then radually shift toy to other locations. 2. Vary noise and positions of sources.
Visually Guided Reach and Grasp: Blindness prevents an infant from seeing objects he might want to touch and grasp. Failure to touch and grasp lessens problem solving skills, motoric schematas, items to manipulate and examine in one's hands, etc. Fraiberg (1968) noted that the infant's hands "can give him only a small part of the information he needs for learning about his world, and his hands do not serve intentionality" (p.284).	1. Place a brightly colored object several inches from hild's head when in a side lying position or on back with object suspended near midline. 2. Direct, if necessary, child's hand to swipe at objects, causing sound, light, or movement of object. 3. Attract child's attention to his hands, place object near by and note visual glance to object, encourage hand to encounter object, finally grasping. 4. If necessary, place child's hand on object whle in his visual field. Slowly remove object from hand and continue to shake object while encouraging child to place hand on object again. 5. Place objects in peripheral field, attract attention then encourage grasp, requiring hand to move into the visual field and contact object.

Object Permanence:

Blind children fail to attend to disappearing objects, thus once they are not in bodily contact with the object, they are literally "out-of-sight-out-of-mind". The failure to formulate object recall through visual memory delays the development of object concept. Fraiberg (1969) contends the development of object concept is a critical one for blind infants in that it provides the infant with the security he needs to release objects or persons and move out to explore the rest of the environment. The extent of the delay in acquisition of object concept in blind children is dramatic: Fraiberg found the achievement of object concept in sighted infants to occur around two years, while in blind, the concepts appeared between three and five years.

1. Play peek-a-boo with child and let the child remove your hands from your face. Reverse game and urge child to cover his face.
2. Hide toys under simple coverings such as box lids, diapers and clothing. Demonstrate removal and discovery. Encourage him to remove covering and secure a toy.
3. Enlarge numbers 1 and 2 to include several possible hiding places, all initially assessible to the child and adult Encourage his pursuit of toy.
4. Place a small toy or edible in your hand, then drop object behind your back. Show child the empty hands, then encourage visual pursuit of object.
5. Repeat No.4 with object being hidden in one of several locales, urge retrieval of object.

Localization of Objects in Space:

Absence of visual awareness of what exists in space has a profound impact upon conceptual understanding of size, shape, relationship, memory, and virutally all information derived from these sources through visual channels. Although auditory and tactile imput eventually cue the blind infant to object identification and a very gross perception of spatial awareness, the attendant organization leading to an articulated, global impression of space and space content is exceedingly difficult to ascertain.

Operational Causality:

Fraiberg's finding's noted that the failure of the blind child to develop object permanence presents a "conceptual problem that becomes a temporary barrier to the development of spatial concepts and notions of causality" (p. 287). The sighted child observes cause and effect relationshps then experiments with these schemes himself Later he notes similar objects that can be operated on using schemes already known to them. Through these experiences, he comes to know himself as an activator and he identifies sources of object activiation.

1. Demonstrate activiation of toy to child, observe toy and wait until action ceases. Wait until child gestures for adult to repeat the scene.
2. Repeat above and encourage child's activation of toy. Demonstrate or shape child's hand in activation scheme.
3. Use sound toys such as "Farmer says" or movement toys that have or would descrete sudden movements such as Jack-in-the-box with blind children.

Examining & Relating Ojbects:

Experimentation and problem solving are key components to the formulation of a bases for later cognitive operations. Blindness inevitably hinders these experiences. The natural association of objects that relate to each other must be understood through other means. Discovering the relationships between light switches, lamps, electric cords, and sockets are first discovered as single entities, and only much later are the mutual dependency of these things learned.

1. Present toy to child that has definite orientation such as baby doll, bottle with nipple, book with textures to feel. Encourage proper placement and examination of key elements.
2. Give child objects associated with body parts such as hat, sock, shoe. Urge child to place in proximity to expected body location.
3. Give child two objects associated in an expected manner such as bowl and spoon, soap and wash rag, peg and board, toy man and car. Encourage child to combine appropriately.

Development of Tool Use:

The discovery that objects can be used to alve problems and work for you to make ends more accessible comes through observation of others using tools. For the blid child, tool use comes slowly and through practical experimentation, rather than through mental planning prior to experimentation. Tool use is similar to word use in that they both are means to ends. For the deaf child, the delay in the use of words clearly impacts upon the acquisition of representational behavior.

1. Place pacifier on top of garment such as chld's sweater. Have only sleeve extending in direction of child. encourage child to grasp sleeve and move garment closer to secure object.
2. Place toy with ribbon attachment slightly out of reach of child but ribbon near hand. Demonstrate pull on string to secure toy.
3. Place desired toy or food out of reach. Provide child a useful tool for securing object such as toys, hoe or stick. Demonstrate use of object in child's hand and look at food or toy saying "you get it".

Repetition of Early Schemata:

The sighted child sees sahpes that are similar to other visual images then transfers schemata from the known object to the new object. The blind child must tactually explore these similarities, a much slower and less creative process. In much the same way, language is acquired through repetition of verbal sounds that are reinforced and pleasureable.

1. With child in supine position, encourage use of hands to activate cradle gym then attention to action, sounds, etc.
2. Vary No. 1 with other objects that activate upon slight contact such as mobiles, wind chimes, etc. Attach these to side of crib, out of reach and demonstrate body contact with side of crib to activate object.
3. Present toys that activate in similar ways or require the same movements to produce similar effects such as toys to roll, objects to drop in can, bottles of liquid that bubble when turned. Encourage generalization of action schemata across the objects.

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The Profoundly Handicapped Child- Assessing Sensorimotor and Communication Abilities

Nancy Fieber, M.A.
MEYER CHILDREN'S REHABILITATION INSTITUTE
OMAHA, NEBRASKA

This presentation is addressed to those teachers and therapists who work with profoundly handicapped children. This group includes those children who can only perform at the level of a few months on a standardized psychological assessment, who often have severe seizure disorders and may be severely motor handicapped as well. These children have been unable to interpret their environment and have had little control over their environment.

Less obvious than motor impairments, but probably even more significant educationally, are a high incidence of sensory and multisensory impairments in vision and hearing. These have often been inadequately diagnosed, inadequately treated, and not appreciated in approaching these children as learners and communicators. Such sensory input from environment that has gotten through may have no meaning because of lack of correlating information This is a very diverse group of multihandicapped children with complex interactions between sensory deficits and motor deficits, and it is no wonder that teachers complain that materials don't really fit them.

Most of the assessment models available to educators for developing curriculum, measuring progress and gathering program data do not adequately meet the needs of the profoundly handicapped. There are too few items appropriate at the lower levels. The developmentally based skill sequences are derived from the behaviors of sensorily intact children and often are not valid. At this point we do not always have adequate sequences to substitute. The work of Selma Fraiberg is beginning to help us understand the early development of visually impaired children, but there are still many gaps. (1966, 1968, 1975). At this time it is hoped that a flexible approach to assessment and curriculum can be allowed, so that a teacher can supplement acccording to a child's individual needs.

Because motor impairments are so visible it is not unusual in programs for profoundly handicapped children to see emphasis on motor management and feeding. These are essential and will require adequate physical and occupational therapy support by therapists trained in cerebral palsy and other pediatric conditions. Often no cognitive goals are even listed as the child has not been considered ready for cognitive goals, largely due to the inadequacies of assessments used. Even with the Piagetian Sensorimotor Cognitive Assessment we use in our Infant Program (see chapter by Robinson and DuBose) there are many children who fall below this assessment, or for whom the described curriculum doesn't seem to be working.

Problems with cognitive and communication curriculum often occur because of poorly understood sensory functioning and implications for adaptations, goals, sequences and strategies. For example, visual tracking is considered to be a precursor to the visual search problems of the object permanence development sequences. If the child is visually impaired with only light and shadow perception, this activity may hopefully prepare for some use of residual vision in localizing things, but the child in early development will not associate this perceptual event with an object on which he has acted. Nor will a "Look at me," program go any place for this child. When a child has severe motor impairment of oral functions and a hearing loss, a "Reciprocal vocal imitation" goal is probably going nowhere and other communication goals and strategies may be more productive.

Somehow we must find not only the "cognitive match" stressed by Hunt (1960) as being critical for cognitive learning and intrinsic motivation, but a "perceptual match" and a "communication match." A diagnostic teaching approach is critical both in assessment and teaching, and analysis of tasks must involve processes and prerequisites. Today we will discuss some assessment areas and curriculum implications

which will help us make the right match for a child. Areas emphasized will be particularly concerned with interpretation and control of environment.

Factors Affecting Sensory Organization

We attempt to find out a child's sensory abilities through medical and audiological reports and through functional vision and hearing assessment. Assessment may involve some specific tasks or probes, however, must be tied into assessment of other areas of behavior and observation of the child's spontaneous behaviors. There are also several factors related to sensory organization which need exploring and which may lead to specific strategies.

Attention. Bruner (1969) has described developmental changes in attention which may be pertinent to this population. The newborn, or child at a very primitive level, shows very diffuse or distractable attention. Although fixation reflex is present at birth, a newborn fixates only briefly, then attention is lost. In the first few months the infant is able to focus attention longer, in fact seems to lock on a stimulus--a stage of stuckness. We often see such stimulus controlled behaviors in our profoundly handicapped children, especially those with hyperopia (farsightedness) and poor acommodative ability who cannot shift focus appropriately. Such children seem "caught" by stimuli; they do not shift gaze readily between visual stimuli and only attend to one thing; looking seems to interfere with listening. Finally attention becomes more self-regulated. The child shifts attention voluntarily and may decide not to look or listen to a familiar stimulus which has become boring.

It is not unusual to hear from a teacher who has been working with fixation or tracking with a child, that the child all of a sudden won't look. The teacher's data has shown longer durations and arcs and now these have decreased. The child may even close his eyes and appear to avoid the stimuli. This may be because the child now processes stimuli faster, or he may be able to recognize the familiar and is more interested in novelty. He may be able to control his own attention and not look. The child has really progressed but the avoidance can cause some real setbacks.

Attention should also be observed in terms of mode. A child may show better attention in one modality than another, even in an impaired channel. This may not always be in accord with ophthalmological and audiological information. It is not unusual to read in a report that a child has no useful vision and that his hearing loss is not significant, yet the child has developed and relies on his residual vision and doesn't use his hearing at all.

Positioning can facilitate or interfere with attention. We show a little boy in the videotape who is learning to associate location of tracked visual stimulus with localized sound stimulus and the ability to roll from back to that side. His attention is caught by ceiling lights until a pillow is placed to flex his head more. He is shown in supported sitting working on head righting. Due to his oculomotor instability his visual contact with environment or presented stimulus is rare. When his head is steadied by the therapists's hand he looks and follows and has much better visual attention. Motor instability will not be conducive to attention. The teacher and therapist will have to clarify just when the activity's purpose is motor challenge and when it is cognitive challenge, and provide thoughtfully for both, but not at the same moment.

Arousal and state. Responses to sensory input may also be affected by the disorders of state and arousal which may occur as a consequence of central nervous system problems. There are children who are irritable and difficult to sooth, children who overload to environmental stimuli, and children with severe seizure and medication problems who are lethargic, hardly reacting at all. State may affect responses to stimuli and activities in turn may affect state.

The classification of states in the neonatal infant has been useful with very low functioning children as well as infants with state disorders. The most typical classification includes deep sleep, light sleep, drowsiness, crying, alert and active, and alert and inactive. (See Lewis, 1972; Moss and Robson, 1970; and Wolff, 1966). The alert and inactive state is the most conducive to visual and auditory attention. At the same time looking behaviors may quiet the child, even impacting on movement and tone.

The child shown in the videotape is very caught by the brightly painted wall patterns and ceiling lights of a new room and becomes a quiet looker. If we screen off distractions we obtain attention for looking activities, but he does not then show much motor activity when offered a "swatter" he usually enjoys. Later we see him in an alert and active state following some handling and a bouncing game on a big ball. He now uses limb movements as "procedures" to elicit more of the game, and when placed in supine again he

actively repeats movements producing an auditory/visual spectacle. We need to sequence events thoughtfully for him--planning activities according to state as well as manipulating his state through activities.

We have a great deal to learn about the effects of varying stimuli on state with our handicapped population. We do have some information from the literature on interventions affecting state and soothing in neonates. (Brackbill, 1973; Korner and Grobstein, 1966).

A particular form of sensory input, for example vestibular stimulation, can have varying effects. Bringing a child abruptly from supine to upright, or bouncing a little, has elicited eye opening and alerting with several very lethargic children, similar to findings of Korner's research with neonates. Slow rhythmic rocking, especially accompanied by rhythmic sound, has enabled some very irritable and unsoothable infants to quiet and begin attending to outside simuli. The visual organization of children with complex central oculomotor system problems, deviations of gaze and poor fixation reflexes, is adversely affected by vestibular stimulation such as rocking, turning, or bouncing, as they already tend to have uninhibited vestibular-ocular reflexes interfering with fixation. (Fieber, 1974). Sensory stimuli should not be treated as recipes--effects should be measurable in terms of definable state changes or specific functional abilities such as fixation.

Self-stimulation. The child's habitual self-stimulatory behaviors can provide much useful information about sensory status and what is reinforcing to a child. Before jumping into a behavioral program to eliminate any such behaviors further analysis is needed to see what they tell you and how the child may be using them.

First observe the modes in which self-stimulation occurs. Some self-stimulatory behaviors occur particularly with significant visual system impairments. Eye-poking or "sparking" is an example--pressure on eye and nerve elicits light and pattern phenomena. In my opinion light gazing and flicking an object or fingers close to eyes also imply a visual system problem. When the impairment is known, self-stimulation can give clues about residuals. The light gazer obviously has light perception; the child moving fingers or shiny object close to eyes must have some perception of light, shadow or movement, and we know what is reinforcing to him. If we observe how close he holds it or in what field he holds it, or the position in which he holds his head, we have functional vision information which may help us in teaching strategies as well as assist the ophthalmologist.

Some children will self-stimulate with motor activity in spite of severe motor impairments--constant limb movements, rolling head or changing position. Some will self-stimulate in what appears to be an abnormal tonic reflex posture, such as the child who throws himself back in extension, smiling spacily, and rolling up his eyes. This is not always involuntary--one needs to determine what is uncontrollable and what is deliberate. This is not unusual with sensory impaired multihandicapped children, especially in an institutional setting.

The effect of positioning on self-stimulation should be explored. In the case of the child who self-stimulates in the extensor pattern, a partially tipped up flexed posture may enable the child to bring down eyes and attend outward. Some children's self-stimulation is very tied to a habitual posture, and one may get attention outward directed more easily in another posture. The child may also vary type of self-stimulation in different postures, for example, light gaze in supine and kick or hit chair in wheel chair.

Mouthing is one of the behaviors which most often concerns teachers. This can vary qualitatively--it may be a perseverative assimilatory biting or sucking scheme, or outward directed in scanning or identifying. This is a logical and necessary form of examination for a visually impaired child. Actually, I am glad to see mouthing in a profoundly handicapped child--it is often not possible motorically.

The child may mouth only certain objects for which there are no meaning, exploiting others with a variety of object schemes. Here one must look closely at object attributes and the issue of perceptual and cognitive match. One little boy mouths all small objects--if they are bigger and have a visually interesting movement attribute, he tries out a number of visual and sound-producing schemes.

We also want to know what happens if we interrupt a self-stimulatory behavior. Can the child stop the behavior when presented an interesting alternative? Can the teacher gently restrain the behavior--does the child shift attention to the activity or is he so stressed that there is no attention? Does the child attend while doing the behavior?

Experienced educators of visually impaired

children have long suspected that self-stimulation was related to sensory deprivation, boredom, stress and frustration. (Knight, 1972; Tait, 1972). Now there is research suggesting that self-stimulation may be used by the child both to increase and decrease arousal level or to shift between states. Changes in heart rate, respiration and EEG have been demonstrated. (Sroufe and Waters, 1977).

At this time we need to be aware that some self-stimulation, at least, may have served or be serving some adaptive function for the child. Perhaps we can someday distinguish between self-stimulation which serves a function and that which has merely become an empty stereotypic activity. We always need to be sure our tasks and activities really are appropriate and be thoughtful in considering how to decelerate such behaviors if we really need to at all.

Complex Visual System Problems

The visual problems found in the profoundly handicapped group include complex central visual and oculomotor system problems as well as defects of eye or optic nerve. The eye is only the peripheral receptor for the visual system, which also includes the specific pathways and centers of the brain involved in visual functions. The oculomotor system is included in the visual system and involves control of the external and internal eye muscles necessary for looking behaviors.

Often incorrect assumptions are made from evaluations. When a child has a central visual system problem such as inability to fixate we should not brush this off as due to mental retardation or cerebral palsy--even a premature infant can fixate. When the ophthalmologist reports a normal peripheral eye structure this does not mean vision is intact--the child may have no vision. When a refractive error is insignificant normal acuity can not be implied. Misinterpreting eye reports can lead to inappropriate educational goals and strategies. A functional vision assessment is a necessary part of educational evaluation for deaf-blind and multihandicapped children and is described in another paper. (Fiociello). The profoundly handicapped child's visual system problems require some special considerations of very early levels of functioning and abnormalities common to this group.

We are beginning to appreciate that visual functions are hierarchial and that we must divide these into localization or spatial vision and discrimination vision. Localization vision includes a variety of looking actions which may be differentially affected. Discrimination functions are theoretically higher and will be affected by the intactness of localization functions. A localization behavior does imply that the child discriminates something, but the commonest error we make is assuming that because he looks at something or picks it up, he sees it the same way we do.

Included in localization functions are first of all the fixation and following reflexes present at birth, which with development come under some voluntary control. The fixation reflex orients the eye so that an image reaches the fovea, or area for clearest vision on the retina. Mechanisms develop to keep eyes and head centered with each other to facilitate a clear image. A good way to appreciate this is to look straight ahead and move some written material just barely into your peripheral visual field. You are aware of something, but form and pattern are blurred. If you turn your eyes as far as you can without head movement, the gross form of the paper begins to take shape but the pattern is still blurry. If you then turn your head to center with your eyes the pattern is now clear because the image is now on the fovea. Now hold the paper in front where you see clearly and without moving your eyes move the paper laterally. It become blurry, but if you could track it outward you could maintain a clear view. It becomes apparent that looking or localization can affect discrimination.

With development the child fixates and follows longer, and in various directions, acquires ability to turn eyes to peripheral stimuli, holds a fixation at periphery of gaze, blinks to approaching stimuli, shifts gaze horizontally and vertically, and turns eyes to auditory stimuli out of sight. Following and shift of gaze also develop between near and far, with convergent and divergent movements in coordination with accmodation of the lens of the eye, enabling adjustment of focus for different distances. These enable the child to expand focal distance, the distance at which images are clear, beyond the narrow 7-10 inches of the newborn. When these functions do not develop properly things may appear like a picture taken with the camera out of focus.

Each of these localizing functions develops at a predictable age and involves maturation and intactness of specific pathways and centers, some of which are known. It is possible to determine that localizing behaviors are developmentally discrepant with selected other behaviors. Many

behaviors however, will be dependent on localizing such as visually guided reach or visual fixation of sound sources leading to auditory associations. Therefore one may not be able to use discrepancy with over-all cognitive level as a criteria for saying a visual system problem is significant. This is important when we come to labeling children for educational purposes or certification as deaf-blind.

Specific problems can occur with any of these looking or localization behaviors and each has implications for educational strategies in visual training or compensations. Tracking or smooth pursuit of moving stimuli involves different central pathways than shift of gaze or the saccadic pursuit of visual analysis, and these may be differentially affected. One child has not been able to track moving stimuli but can shift gaze. Although his near and far focusing is also limited he can discriminate things at a certain distance. We have had to adapt visual task presentations as well as provide compensatory experiences for all he misses visually. He can eye-point to wants and named pictures and demonstrates understanding of verbal commands with touch and situational cues.

There are different gaze centers for each direction of gaze and these may be specifically impaired so that a child may be unable to move his eyes in one direction--if this is downward and he cannot compensate with his head he is going to miss whatever is presented on his tray, or it will be blurred as was the paper in your peripheral gaze. If a child cannot hold a fixation at the extremes of gaze he will not be able to maintain gaze at point of disappearance of a tracked object. We may need other criterion behaviors and perhaps experiences in another channel in developing object permanence concepts.

A visual assessment, medical or functional, is incomplete unless it considers both near and far vision and relates these to the child's developmental needs. The near vision deficit is especially critical for the far-sighted child shown in the tapes, who has no apparent convergent movements and appears to lack compensatory accomodation. He has no visual contact with his hands. He fixates at near only to objects which have light, movement or sound with background blotted out. Figure-ground is poor for such children, and only when we eliminate background does he seem to discriminate and recognize specific objects such as his baby food jar several feet away on the mat.

In addition to these lacks in functions there are a number of abnormal oculomotor system problems which occur. One of these is nystagmus, the jerking or roving movements of the eyes. If the child has vision the movements will blur it. Another problem we see is a strong deviation of eyes in one direction, often associated with inability to free eyes or fixate. This is not simply part of cerebral palsy, but involves damage to eye-head movement centers and often seizure disorder. A child with cerebral palsy who has strong tonic spasms of neck may have eyes pull in direction of head at times and some limitation of effective range of eye movements, but if he has an intact visual system will be able to fixate, follow and discriminate when appropriately positioned. Another central visual or oculomotor system problem which can occur is exaggerated and sustained eye movements opposite direction of head tilt or rotation, which also interfere with fixation. These are an exaggerated version of the Doll's Eyes Movements which occur in normal neonates. These mechanisms may interact in such a way that eyes can free and center in one posture and not in another. Assessment determines optimal positioning for freeing and centering eyes, the condition necessary if some ability to fixate is to develop. Frequently the optimal position will be supine with head fixed and centered, or possibly lying on the side to which a strong deviation occurs.

Others of this group have abnormalities of vergence consisting of internal atrabismus or vergence consisting of internal strabismus or esotropia (inward rotation of eyes), or external strabismus or exotropia (outward rotation of eyes). Not only do such children not have binocular fusion of images, they may have double vision or have lost the use of one eye. All the localization deficits and abnormalities described can significantly affect discrimination, especially in a child with poor compensatory abilities.

Discrimination vision involves perception of light, shadow, movement, color, form and pattern. We have no way of being sure exactly what a child sees until he can point to named pictures at 20-24 mos. or can perform matching tasks at age three level. Therefore acuity as usually defined in terms of Snellen equivalents is not measurable. We have been exploring clinical use of the stimulus preference and habituation methods used by experimental psychologists in studying the very early vision of infants. Some other ways of inferring discrimination are also possible if other

cues are carefully ruled out. One is discrimination or differentiation of faces, as demonstrated by preferential responses, recognition, etc.--a behavior possible in 2 mo. old infants. Another is eliciting a smile to a smile, when just face did not elicit one. Some level of pattern of form discrimination must be present. When a child visually recognizes an object and goes right to a specific scheme without first handling or trying it out, something must be discriminated. One must be careful in deciding what--the child may recognize a color blob or just a shiny glint. If the child selectively chooses preferred objects or toys one may explore the possible aspects discriminated more carefully. An object of similar size and color may be paired with the preferred toy--if the child still chooses it, one can assume there is some element of form or patern vision. When we saw the child in the tape recognize a baby food jar and get excited in anticipation of eating, we again can infer some form and pattern vision as there were no other situational cues--he was not usually fed in this setting. Our errors are probably most typically in overestimation of discrimination--extreme caution is needed.

What do we do with this information? One important purpose of a functional vision assessment is to provide information to the ophthalmologist about how a child uses his vision. This may assist him in evaluation and treatment decisions. Often it is not possible to obtain a good functional appraisal of these children in the medical office.

With every multihandicapped child who has any potential residual vision we should have functional vision training goals. These should be thought of as a separate area of curriculum with long-term goals unknown. I have become very concerned, however, at how some teachers have confined teaching to deficit areas or made progression of cognitive curriculum contingent on improvement of visual behaviors. I believe curriculum strategies should always take advantage of the child's strengths, if necessary teaching to other modalities and substituting other criterion behaviors as necessary. These are discussed in Fieber, (1977).

Functional Hearing

A functional hearing assessment is also part of an educational assessment for multihandicapped children. Again the assumptions made may overestimate the child's hearing abilities. Several aspects or levels are assessed: 1) Awareness at a reflexive level; 2) Awareness with attention/alerting; 3) Localization; 4) Discrimination; 5) Recognition; 6) Comprehension. The material discussed is available in detail in a manual for Assessment of Auditory Functioning of Deaf-Blind/Multihandicapped Children by Deborah Kukla and Theresa Thomas. (1978)

As in vision it is important to differentiate between discrimination and localization functions. It is possible to discriminate a sound or word and not be able to localize it. This occurs in the child with hearing in only one ear or an asymmetric loss. Localization depends on a time difference for sound waves reaching the two ears. Some of the children with severe visual system problems may not be able to turn eyes or head and fixate sound source. When a child cannot turn and visually identify sound source for whatever reason it will be difficult to identify and make meaning of sounds.

Our sensorimotor cognitive assessment samples only the first milestone of sound localization--lateral to ear. It is necessary to check the further developmental sequence as follows: Lateral to ear at 4-7 mo.; Lateral and then downwards at 7-9 mo.; Directly to lateral and downward source at 9-13 mos.; Lateral and then upwards at 13-16 mo; Directly to lateral and upward source at 16-21 mos.; and to almost any angle at 21-24 mo. Northern and Downs, 1974). Midline sounds are most difficult to localize and the blind child cannot differentiate between front, above or behind. He learns to reach in front based on past experiences and to finally turn or tilt his head to assist localization. In considering how well the child is correlating visual and auditory information and in exploring a blind child's use of sound in directing reach or locomotion, this sequence must be considered.

We should be cautious about inferring discrimination from localization behaviors, although some awareness of presence of sound is implied. A teacher presenting sounds at 6 inches lateral to a child's ear may obtain a localization response and assume hearing is fine. All it means is that the child hears something at six inches. If a noisemaker is used one needs to consider frequencies (high or low pitch grossly), loudness and distance. A useful chart in Kukla and Thomas (1978) describes the loudness range of a number of familiar toys at varying distances. For example the Creative Playthings wooden clacker has a loudness of 70-80dB at a range of 6 in. to 2 ft., and 60-70dB at 6 feet. The Fisher Price Music Box Owl

has a loudness of 50-60dB at 6 in. to 3 ft., and under 50dB at 6 feet. The child may discriminate these and not discriminate speech, and may have as much as a mild to moderate loss.

It is easy to assume a child discriminates and recognizes speech when we give verbal commands. The child may only be discriminating presence of voice and responding to total situational cues. The assistance of a trained teacher of the deaf-blind, deaf educator or speech pathologist can assist in interpreting responses appropriately.

In the profoundly handicapped population we see a high incidence of chronic middle ear disease or serious otitis. When this occurs chronically during the first few years of life there may be a significant impact on auditory system development. Audiological evaluations with impedance testing are a necessity for this group. Cortical evoked response audiometry may be necessary to clarify neurological and conductive components. Repeated audiological evaluations are indicated to monitor status of children with the chronic otitis media history as the condition may reoccur.

Cognitive Assessment and Curriculum

As we attempt to utilize the Sensorimotor Cognitive Assessment there are many problems when the child has visual or hearing deficits, especially when combined with motor deficits. We will need different criterion behaviors, and must understand the area being tapped. We can use the original criterion behavior sequences with modification of motor responses for the child who is motorically impaired with intact vision and hearing. The assessment is very visually oriented, and when vision is impaired we will need different ways to sample and develop the same ideas. Adaptations for deaf-blind and other multihandicapped children have been described in Fieber (1977) with emphasis on lower levels of curriculum.

In this paper we will give examples of some of the most typical problems encountered in the Means for Achieving Environmental Events and Causality Subscales where we see the beginnings of the child's ideas of acting on environment, particulary with use of the hand as a tool. This is one of the most frustrating areas when teachers try to implement sensorimotor curriculum.

The first three items of the "Means-ends" subscale are:

1) Hand-watching. Coordination of two schemes, moving arm to visually explore hand. Generally observed in supine in infants.
2) Child repeats an early motor movement (batting, kicking, head motion, etc) which activates a visual or auditory spectacle.
3) Child reaches and grasps toy when both hand and toy are in view--then with just toy in view.

Problems in these areas involve cognitive factors, motor factors, and sensory factors. We will have to factor out mental and motor factors and always keep in mind that if we expect a child to act on environment the event must be perceivable. A perceptual match with vision and hearing is critical.

The beginings of reach and grasp seem to be separate mental events, which are finally coordinated, a kind of sequencing forward or foresightful use of schemes. Experience with assessing and training a number of children who did not use their hands suggests that discrepancies may exist between the two schemes and that it is appropriate to design parallel curriculuum sequences which finally merge rather than arbitrarily sequencing reach and grasp events together.

Schemes for grasping. The basic scheme for grasping is included at the beginning of the Object Schemes subscale, but also relates to the Means-ends subscale and should be developing at the same time as the hand-watching and repetition of movements producing a spectacle. Grasp normally begins with automatic responses to stretch and touch, and during these phases, grasped objects are retained only briefly. Voluntary grasp, or the "grasp scheme," normally appears as the reflex wanes, and the child retains grasp longer to maintain an interesting perception. Fisted hands begin to open and an open hand will encounter graspable things--body parts, clothing, crib environment.

Children with tightly fisted hands, abnormal postures and restricted movement may not encounter graspables in this way, and unless someone places things in their hands, may not develop a mental representation of grasp. Many severely athetoid children cannot maintain grasp due to conflicting withdrawal reactions, though they may have the idea and intent. With other children there is no motor excuse--hands are open, motor grasp occurs with rasping of hands or feet, but there is no grasp scheme for objects. One must look at both the motor aspect and the cognitive intent. When it is difficult to tell because the hand

is so tightly fisted, one must look for indications of awareness such as quieting, a tentative movement toward the mouth, visual or head orienting, etc. The next steps will involve effort to coordinate grasp with other schemes such as mouthing, looking, or listening, and if these are present one can assume some sort of grasp scheme.

The means-ends and causality subscales begin with hand-watching. This is an important precursor of visually directed reach and of looking at hand grasping object. As the child looks at hand grasping he realizes that the thing seen is graspable. The coordination of grasp with mouthing is an important aspect of early hand use which may often be impaired. It does not seem to be as critical in the development of reach and grasp, however, as is the coordination with looking or listening. One or the other is going to be necessary if the child is ever to direct his reach to an object, then grasp it.

Can the child see his hand? The coordination of visual schemes with hand and grasped object may be very difficult for a motor impaired child. Due to exaggerated neck extension and abnormal quality of the asymmetric tonic neck reflex the hand may never intersect with gaze, whereas in the normal supine infant this pattern allows or facilitates hand-watching. Even in side-lying positioning neck extension and upward eye deviation combined with extended arms may prevent hand watching. The motor-impaired child may also have difficulty maintaining grasp while moving arm, interfering with coordination of grasp with other schemes. The child may drop the object but show clear intent. With positioning, "dressing up" the hands to catch the eyes, and assistance the child may look at his hand.

Children with visual handicaps may demonstrate the hand-watching behavior but at such a close focal distance that this localization does not progress in the normal sequence to directing reach. The child who cannot focus at near also may deviate from the normal sequence, and the blind child must follow a different route using memory of movement and sound.

The far-sighted little boy in the tapes has never had any visual contact with his hands. He has developed a grasp scheme and it is coordinated with a listening-shaking scheme and efforts to mouth. At this time his grasp schemes and reach or approach schemes are still separate events.

The blind child prepares for eventual reach in his coordination of grasp with listening--he learns that objects heard can be grasped. He is very dependent at first on adults making things available and placing them in his hands. Sound will not direct his reach for some time.

Schemes for approach or reach. When the hand-watching child encounters a visual stimulus at the side of his crib he sees his hand by the stimulus. This may lead to repeated approach movements to the visual stimulus without necessarily any intent to grasp or act on the object. At times interest in a visual stimulus at the side seems to draw the hand to it, also preparing for a more foresightful approach.

The discovery that arm movements may cause something to move or sound also prepares for reach as we see the development of a swipe or swat to the side. This swipe evolves from a fisted swipe to open-handed batting, and it is possible for hands that have been flexed in spasm to begin to open though other extensor patterns such as protective extension may not yet be present.

A significant step occurs when a child sees an object, approaches or bats it intentionally, and then when contacting seems to think of grasping, as if an afterthought. With our profoundly handicapped children this appears to be a major stage occurring before the child reaches with obvious intent to grasp. With these children I usually do not see the slow approach with alternate glancing between hand and object which has been described in normal infants as Piagetian reach. This requires visual abilities these children may not have. The child in the tape, although without visual contact with grasp, does swat at a seen stimulus to the side--he knows the visual stimulus can be approached. Apparently it is just far away so that it is perceivable. The next step we want to see for him is while swatting he begins to grasp, preparing for a more intentional sequencing.

Blind children prepare for reach by repeating swats in the location where they previously encountered something, and when swatting may also grasp. This prepares along with development of sound localization for eventually reaching to a recognizable sounded object. The lateral and downward localization seems to be the stage when we see reach to various locations on table or floor as the child sits, or toward his hands laterally in supine. Lateral placements will assist the early stages of localizing.

Making things happen. In the normal course of events the repetition of movements causing an auditory or sound spectacle includes arm movements, assisting in the reach-grasp

developmental sequence. A very important spect of this behavior is the child's realization that he can make things happen. If we are not seeing arm movements, however, we look for any possible movement that might be harnessed to help the child become a causer of events. We observe the child's spontaneous movements to determine the most probable movement, and define it in terms of part of body, direction, and arc so that it can be counted. We then record a baseline of number of movements in 3 or 5 minutes. The next step is to explore placement of an easily activated auditory/visual spectacle such as brass or fish-scale wind chimes, probably in contact with the limb so that the slightest movement activates it. We avoid tinkling the chimes except as a little prompt when the child is not moving, and guarantee a tinkle even for minimal movements. A yarn tie with slight tension may help harness slight movements and may increase awareness of the limb. Often we need to experiment with placement till we find the optimal arrangement or spectacle. We record the number of movements in 3 or 5 minutes, not just the successful ones in tinkling the chimes, as we want a consistency with our baseline method. In early training it may be helpful to record baselines and contingent movements for each session, as changes are slow for some children, and performance may be variable from day to day due to seizures, arousal problems, etc.

One may need to experiment with different positioning arrangements. Experiences have suggested that children often move limbs more successfully in supine posture, arms in usual postures to start. The child must repeat a pattern of movement he already had and cannot be expected to correct a movement pattern when he has not yet developed intentionality or spatial locations. Some control of abnormal extensor tone, which is often exaggerated in supine, is helpful--a pillow to flex head, and perhaps flexion of legs over a support or one's lap. Stimulus presentation should be clearly lateral--arms forward and midline coordination will come later. Side-lying may be used if it facilitates movements or visual contact is good. This should be evaluated and not assumed.

As a therapist I used to feel concern about the child's "use of abnormal patterns" and was concerned that an increase of tonic reflex activity might result from these activities in supine. Experience has caused me to revise these premises and to be more concerned about the effects of never acting on environment, both on cognitive and motor development. As the child develops intentionality one sees the child break through abnormal limb patterns, and with the development of reach and grasp one can work toward the more symmetrical midline movements. The reader is referred to the work of Burton White and others describing the very early development of visually guided reach. (Bruner, 1969; White, B., 1969; White Bastle and Held, 1964).

The little boy we have referred to in the tapes began with an abnormal limb extension pattern, arm extending, rotating inward and across body. When we first presented chimes to him they were arranged so he could see them with string attached to his habitual movement. With shaping he was helped to develop an extension--abduction swat to side, actually breaking up his abnormal limb pattern and preparing for synchronizing visual and hand locations in a variety of placements. Another child shown with string-rig began with arms flexed at elbows, retracted at shoulders, and the only movement she made was a hit backwards on surface. When she was aware she was producing a spectacle, we gradually shaped so that the forward component of this movement was the activator, and then progressed to a forward extended swat. Another child shown had very strongly extended, internally rotated and adducted arms in front when in sitting and could not move his arms in this position. In supine, however, he swatted, progressing from using his abnormal extension pattern toward the middle to an abducted swat, and gradually opening hands. He developed reach and grasp in supine, and we are working on midline coordination and breaking up abnormal patterns in sitting where hand use is still very limited. There can be no recipes in positioning. Our corrective positioning may be preventing the child from doing and acting on environment.

The child should not be left too long in an asymmetric supine posture, or any posture, as that can contribute to deformities. We should be concerned with providing a variety of postures, with different advantages or disadvantages understood for each. "Good positioning" may also be deformity producing if the child's postures are limited, and crippling for early sensory organization and cognitive development if the child cannot organize attention, sensory functions or act effectively.

Communication for the Profoundly Handicapped Child

The child in the video-tapes is at the level of signal communication. Things and events have begun to be "signifiers" for him--when placed in supine on pillow in usual sequence of events, and seeing me at his side, he anticipated a swatting activity and laughed and swatted. When he saw the baby food jar he became excited, anticipating eating. When the therapist said "Roll" and gave him a touch cue at his hip, like a little piece of how she used her hand to help him roll, he anticipated and started to roll. In this case a "signifier" "signalled" him to act. When his mother touched his sides and said "Do you want to be picked up?" he was signalled to lift his arms responsively. When he wanted more bouncing on the big ball he signalled for adult to continue by kicking his legs and vocalizing. He signalled for adult to reactivate the music box by swatting.

These signals on his part are examples f a level of the causality subscale where the child learns to use ways he has acted on environment to repeat enjoyed events caused by an adult. They are called "procedures" and are chosen by the child, not arbitrarily by the adult. Our goal is to see generalization of this type of signalling across many situations so that he thinks of himself as the "Big Signaller". We introduced a new situation during the session taped. During spoon-feeding his mother was shown how to have his grasp her little finger of the hand holding the spoon. He quickly learned to signal for more when asked if he wanted more fruit by pulling her hand toward his mouth. He laughed, thinking he was pretty smart. We might expect to see this type of behavior snowball if we are alert to potential eliciting situations, and to see some increasing specificity to his signals.

As Sharon Anderson emphasizes in her paper on a hierarchial approach to communication, communication starts at birth and develops through stages with increasing representation involved until the child is ready for the learned arbitrary symbol system we call language. We commonly think of pre-requisites to language in terms of mental representation or cognitive base, imitation, and identification with another human being. Two other pre-requisites are critical in my opinion--the child must already be communicating with people and realize it is a means to achieve wants.

One of the first areas of assessment is level. With the child discussed and other signal level children we look for signal levels: 1) Crying or smiling as a reflection of state; 2) Anticipation of routines based on time factor and physical need; 3) Any looking touching, tugging pulling, or fussing at person; 4) Leading person or placing hand, more specific fussing; 5) Anticipatory responses with child acting on basis of situational cues. With higher functioning children we will look for the protosymbolic forms of communication that precede language--referent pointing and call-sounds, and natural gestures which represent actions or things.

A child does not develop signal behaviors till he anticipates, and has beginnings of mental representation for events. In curriculum we will design events that lead to anticipation, deliberately planning signifiers for the child. Often we will also model a higher level of communication. Communication is always in context, and events are planned with function in mind.

The pragmatics of functions of communication. All too often the only communication going on with a child is commands and we are all hung up on issues of compliance. If we will look at the pragmatics of communication, or functions, we will be likely to be more conscious of other ways to communicate to the child, and will be better able to design eliciting situations in which the child communicates to us. We will also have another way to measure and show progress.

The functions most commonly used in classifying communication have been described by Halliday (1973). Those most pertinent to a signal level child are:) The Instrumental or "I Want" function. This can be positive, negative, responsive or generated by the child. The signals for more music, more bouncing are of this category. 2) Regulatory or "Do This" function. This function describes a lot of our behavior, but a strong "I want" signal borders on this. 3) Interpersonal "Me and You" function. The child shown uses eye contacts in mutual sharing of pleasurable experiences, greetings, and responsive smiles. 4) Personal "I" function in which child expresses feelings. The child shown uses smiles of pleasure in enjoyed activities, unhappy fussing, and an intellectual "Aren't I Smart" smile when he figures out a new contingency and controls an event. As we see a child beginning to signal we should keep track of the functions in which a signal such as a look or smile is used.

Signals develop increasing complexity.

(Sugarman as quoted by Snyder, 1976). At first signals are simple schemes and will be either person directed or object directed. The child smiles at you when you engage in a game and ask if he wants more. He swats the music box for more music. We then see an increasing combining of signal schemes into complex schemes--the child looks at you and touches your hand to signal you, or swats at the music box and vocalizes. These are still oriented toward either person or object. We need to see many complex combinations of signal schemes develop before the child begins to combine the person oriented and object oriented schemes. At first these will be signal to object then to person--child touches object then turns to adult and touches hand and vocalizes. Finally we see child signal first to person then to object. This gradual increase in complexity and combining of orientation might be thought of as a precurser of subject-verb-object constructions.

It is not unusual to find the child's signals are mainly object oriented. Before we label the child as being unable to relate to people we need to look very hard at how we elicit signals. We need to provide opportunities for both person oriented and object oriented and explore what kind of situations elicit which for a child. The person oriented signals may be more likely to occur in auditory-motor body play games where there is a reciprocity between child and adult, or in shared mutual activities. the object oriented signals occur more likely when the adult activates an object spectacle or uses an object in the eliciting situation.

In recording signals used by a child it may be most appropriate to keep a cumulative record, sample specific situations, question mother, etc., rather than emphasize measurement of times child uses a specific signal in a specific situation. I would like to divert the teacher from only concentrating on a few specific target signals to an approach stressing better awareness and eliciting of child's signals in all situations. When one first sees a child's signal list expand one wonders how much his was due to child change, and how much due to a more perceptive teacher. Charting might simply consist of listing and describing, with dates.

Modes for Communication and Meaning. In considering what modes can be used best to communicate to child or be used by child, at this level one should not be too arbitrary. At the signal level we use multisensory clusters--with visual, auditory and tactile components--an early form of total communication. We use speech, systematically "puting it in" to all situations. When in doubt about vision we pair touch communication with this.

As one notes things and events which act as signifiers or signals to the child one begins to accumulate information about whether sight of something, or feeling something, a sound, a time, etc. was involved. Often one can't tell which component was most important, and we should be cautious in our assumptions. As children begin to signal to us they normally use signals in different modes--in the sensory impaired child we may see ommissions--never a vocalization, never a look, and this may help us as we look toward future communication possibilities.

Meaning is a special problem for visually impaired and deaf-blind children. No sensory input is meaningful till it is correlated or asociated with something else. If the child is not visually

Situation	*Child's Signal*	*Function*	*Schemes*
Pause bounce on ball	Kicks ball	Instrumental, responsive	Single-object directed
Pause music box	Swats box	Instrumental, responsive	Single-object directed
Adult greets child	Smile and vocalization	Interpersonal, responsive	Complex-person directed
Pause patacake game	Touches hands	Instrumental, responsive	Single-person directed
Swats new toy	Smile	Personal-enjoys and intellectual	Single

identifying what sounds are about, they must be associated with doing, an action, or something done to him. When sound has no meaning the child may stop attending to whatever he can hear. This is another reason we use a multisensory form of communication with touch and gesture on body, placing child's hands in approximation of sign, etc.

We need to be more thoughtful about our use of sensory stimulation. Many deaf-blind teachers are getting away from this approach and trying to construct inputs that contribute to meaning. For example, rather than rubbing the child with textures or having the child feel textures that have no meaning in terms of his action schemes for objects, and no associations with real life events, we guide the child to feel things in a context. We guide him to feel his socks and shoes in dressing, to look at them, to touch them to feet, to feel them on feet, with the associated verbal input and touch communication–strokes up sides of ankles for sock on, strokes down for socks off, taps on bottom of feet for shoe.

We put the child through whatever is feasible of so-called self-help skills so that he has more perceptual information for the event, even when he is nowhere near ready to begin taking over. A child with visual impairment may perceive cup coming toward mouth as a blur, but it may become a recognizable one and he may smack in anticipation. If we then put it in his hands it may be a banger, roller, or something to drop if he can manipulate it, but it has no relation to the other perceptual event. Only if we guide him to hold it in the act of drinking can he recognize it as something to drink with. Imagery is going to be motor and tactual when visual imagery is deficient.

Communication and Attachment

In the beginnings of deaf-blind education establishing an interpersonal relationship with a child was considered the first priority. It still should be, and needs to be taken into account in staff assignments so that there is a significant person for the child.

Communication and attachment are closely related. Some psychologists see the mother and infant's very early communication, their own unique signal system, as being the basis for attachment and even more important than meeting physical needs. (Bower, 1977)

The young deaf-blind or multihandicapped youngster raised at home may demonstrate differentiation of people and attachment to parents. When a child does not, this is hard on the parents and leads to an even greater lack of communication. Very early communication begins with the mother reading the baby's signals and needs. The mother develops ways to soothe and manipulate the child's state. Here is where the teacher may need to start. How do you know when the child is hungry, sleepy, has dirty pants?

The child begins to show preferential responses and recognition of voice, face, or handling. The mother or teacher may need special handling cues to assist identification. The child begins to differentiate strangers and eventually shows anxiety and avoidance, or protest when mother or caretaker leaves. These stages should be seen as evidence of increasing attachment and ab ility to think about the person, and handled in that context rather than seen as a misbehavior.

Repeatedly I have seen children who did not differentiate or prefer their mother, nor smile to her, begin to do this when we worked on establishing a signal system. Communication is always a private code at first and that is all right. Hopefully these aspects will be perceived as social development and worthy goals in educational programs. The teacher will come to know the child as a unique person, which indeed he is.

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CHART OF EARLY SENSORY ORGANIZATION

AGE	DEVELOPMENTAL MILESTONES Bayley Scales of Infant Development	OTHER INFORMATION Varied Sources
0-1 mo.	0.1 Generalized response to sounds of bell, rattle, switch. 0.1 Quiets when picked up, soothes 0.1 Momentary fixation to red ring 0.2 Momentary fixation to person's face 0.4 Prolonged fixation of several seconds 0.5 Horizontal tracking, eyes only, red ring 0.7 Horizontal tracking, eyes only, penlight 0.7 Eyes fllow movement of person 0.7 Generalized response to voice out of sight 0.8 Tracks vertically, eyes only, penlight 1.0 Tracks vertically, eyes only, red ring	Focal distance limited to 7-10" Maturation of rods and cones incomplete Poor accomodation of lens Neonatal primitive reflexes: Doll's Eyes Movements, Lid opening Reflex, Eye-Neck Reflex (extends to sudden strong light stimulus) Stimulus preferences: light, movement, red, black & white lines and checkerboards, 2 dimensional Both binocular and monocular fixations Tracking is eye movements only, arc under 90°
1-2 mos.	1.2 Tracks circular arcs, light & red ring 1.3 Free inspection of surroundings 1.5. Social smile: E talks and smiles 1.6 Turns eyes to red ring & light moving in from periphery, if head is centered 1.7 Anticipatory excitement to starting to lift, feed, etc. 1.7 Reacts to paper on face, generalized response or protective 1.9 Blinks at shadow of hand 2.0 Visually recognizes mother	Focal distance at 4-16 wks. 1-3 ft. or more, Beginning accommodation Some head movement as explores Combined auditory-visual input elicits smile before visual input alone Maturation of frontal visual fields modfying occipital centers allows peripheral turn Faces becoming stronger preferred stimuli 4-8 wks. distinguishes red from yellow Increasing discrimination & beginings of recognition memory Habituates to familiar stimuli, novelty increasingly important

CHART OF EARLY SENSORY ORGANIZATION

	DEVELOPMENTAL MILESTONES Bayley Scales of Infant Development	OTHER INFORMATION Varied Sources
2-3 mo.	2.1 Social smile: E smiles, quiet 2.2 Searches with eyes for sound presented laterally 2 ft., head centered 2.3 Eyes follow pencil 2.4 Reacts to disappearance of face 2.5 Regards cube on tray, sitting 2.6 Glances from object to another with sound cues, if centered	Discriminates smile visually. Prefers bullseye to checkerboard pattern. Increasing interest in solid form. Discriminates green 7-11 wk. Eyes follow past midline, beginning head turning with eyes Beginning memory for things out of sight Down gaze in upright, tilts head to look Manipulation of own attention increasing, however still quite stimulus bound and tracking reflex very strong Glance between two objects one of prerequisites for eye-hand coordination Increasing shifting between near and far as convergence and accomodation increasing - "near" improving Hand gazing strong
3-4 mo.	3.1 Tracks ball on table 3.2 Turns head with eyes in tracking in upright sitting 3.3 Aware of strange situation 3.8 Turns head to sound of bell, sitting 3.9 Turns head to sound of rattle, sitting 4.4 Regards tiny pellet on table (smaller than raisin of Denver)	Strong visual inspection of midline hand play 12-16 wks. Tracks 180° and reverses direction Tracking reflex modified by frontal centers, can look away Fixation also coming under more voluntary control of release Accomodation near adult level by 4 mo. Important for eye-hand coordination. 16-28 wks. Still shifts gaze easier in supine than sitting